GROUNDWATER SAMPLING AND REMEDIAL SYSTEM QUARTERLY MONITORING REPORT (First QUARTER 2023)

GARVEY ELEVATOR OU1
FEDERAL SUPERFUND SITE
TECHNICAL SUPPORT TASK ORDER
HASTINGS, NEBRASKA

Prepared for:

United States Environmental Protection Agency
Region 7
11201 Renner Boulevard
Lenexa, Kansas 66219

Contract Number: 68HE-01-18-D0013
Task Order Number: 68HE-07-20-F0129

April 19, 2023

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GROUNDWATER SAMPLING AND REMEDIAL SYSTEM QUARTERLY MONITORING REPORT (FIRST QUARTER 2023) U.S. ENVIRONMENTAL PROTECTION AGENCY REGION 7 GARVEY ELEVATOR FEDERAL SUPERFUND SITE TECHNICAL SUPPORT TASK ORDER HASTINGS, NEBRASKA

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Date Submitted:	April 19, 2023
EPA Region:	7
Contract No.:	68HE-01-18-D0013
Order No.:	68HE-07-20-F0129
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ACRONYMS AND ABBREVIATIONS

AES	Architect Engineer Services
ASR	Analytical Service Request
bgs	below ground surface
CPC	Clear Path Consultants
COC	Contaminants of Concern
CT	Carbon Tetrachloride
EPA	U.S. Environmental Protection Agency
FSP	Field Sampling Plan
ft	feet
ft/day	feet per day
GET	groundwater extraction and treatment
gpm	gallons per minute
LTRA	Long-Term Response Action
MS/MSD	matrix spike/matrix spike duplicate
MW	Monitoring Well
O&M	Operations and Maintenance
OU	Operable Unit
OoM	Order of Magnitude
PCE	tetrachloroethene
PDBs	passive diffusion bags
PLC	programmable logic controller
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality control
RI	Remedial Investigation
ROD	Record of Decision
RW	Recovery Well
SVE	soil vapor extraction
TO	Task Order
TCE	trichloroethene
µg/L	micrograms per liter
$\mu g/m^3$	micrograms per cubic meter
VOCs	volatile organic compounds

1.0 INTRODUCTION

ClearPath Consultants JV (CPC), has been tasked under Environmental Services and Operations Contract Number 68HE-01-18-D0013, Task Order Number 68HE-07-20-F0129, to provide Long-Term Response Action (LTRA) services to support U.S. Environmental Protection Agency (EPA) Region VII in remediation of the Garvey Elevator Site, Operable Unit 1 (OU1) in Hastings, Nebraska. As part of the LTRA, CPC conducts quarterly sampling at OU1.

The site background, history of operations, and past investigations are described in detail in the Final Remedial Investigation Report (HGL, 2011). OU1's location is illustrated on Figure 1. All Figures are located at the end of this Report.

Groundwater monitoring by EPA or its contractors at the site has been ongoing since the Interim Record of Decision (ROD) was issued on June 30, 2010 (EPA, 2010).

CPC conducted quarterly sampling for OU1 from March 6 through 8, 2023. The March 2023 sampling event included fourteen monitoring wells sampled quarterly, eight treatment system recovery well grab samples, one treatment system influent grab sample, and one treatment system effluent grab sample. CPC also collected eight SVE vapor samples and one effluent SVE vapor sample via grab samples with summa canisters. This Quarterly Monitoring Report documents the March 2023 sampling event.

2.0 FIELD ACTIVITIES

CPC conducted the quarterly sampling activities at OU1 on March 6 through 8, 2023. As a part of the March 2023 quarterly sampling event, samples collected included: groundwater from monitoring wells, groundwater extraction and treatment (GET) system process water, and soil vapor extraction (SVE) soil vapor. During the sampling event, groundwater and vapor samples were collected from 14 groundwater monitoring wells (MWs), 8 GET system recovery wells (RWs), GET system influent and effluent, 8 SVE wells, and SVE system effluent for analysis of selected volatile organic compounds (VOCs). All samples collected were assigned to EPA Work Order (WO) 2300072 for groundwater and GET process water and WO 2300073 for vapor samples. The samples from both WOs were submitted for analysis using the regular turnaround-time of thirty days. Copies of the sample collection field notes in the dedicated site logbook, EPA sample collection efield sheets, and the associated chain of custody records for the quarterly sampling events are included in Attachments 1a and 1b.

For the March 2023 sampling event, CPC was equipped with: a high-pressure bladder pump control unit to collect groundwater samples; an electronic water level indicator for depth-to-groundwater measurements; and a multiparameter water quality meter to collect water quality measurements during purging activities. All MW samples, except at MW nests MW-19A, -20A, -30A, and -31A, were collected from passive diffusion bags (PDBs) that were installed in the MWs during the December 2022 sampling event. Multi-level monitoring wells MW-19A, -20A, -30A, and -31A are outfitted with dedicated Waterloo Multilevel Sampling Systems and sample tubing. All four multilevel MWs were sampled during the March 2023 sampling event. The groundwater monitoring wells sampled during the March 2023 sampling event are shown on Figure 2.

The March 2023 GET process water and SVE vapor samples were collected at the sample locations for these media inside the western portion of the Quonset hut. The Quonset hut location is depicted on Figure 2. Both SVE-1 and SVE-2 were turned off on October 25, 2022, per EPA's request, therefore the SVE samples collected in March reflect SVE rebound sampling, as opposed to the samples collected before October 2022.

Static water levels for the sampled MWs were gauged on March 6, 2023. Field activities were conducted in accordance with the Quality Assurance Project Plan (QAPP) (CPC, December 2020). Any deviations from the procedures presented in the QAPP are discussed in Section 2.2.2. Quality control (QC) samples were collected to ensure usability of the data as discussed in Section 2.5.

2.1 Water Level Measurement Event

Manual water level measurements were obtained from 45 OU1 subsite monitoring/test wells on March 6, 2023. The water levels were measured manually using a Solinst model electronic water level indicator. Values for groundwater elevation for March 6, 2023 were also obtained for the four monitoring wells equipped with Waterloo Multilevel Sampling Systems (MW-19A&C; 20A,C,D,&E; -30A,C,D,&E; and -31A&C) for the time intervals immediately prior to Manual water level measurements. Because depth-to-water cannot be manually measured in these wells, groundwater elevations were obtained from the GET system programmable logic controller (PLC). Table 1 summarizes the groundwater level measurements and associated groundwater elevations for the field event.

2.2 Groundwater Sampling

During the March 2023 event, 14 investigative groundwater samples were collected for analysis of select VOCs. Insufficient water was present for sampling the 15th normally sampled well MW-4A. In addition, the following samples were collected and submitted for QC purposes: one duplicate groundwater sample, one trip blank, one matrix spike/matrix spike duplicate (MS/MSD) groundwater sample, and one equipment blank. All samples were submitted to the EPA Region 7 Laboratory for VOCs analysis. All samples were analyzed for carbon tetrachloride (CCL_4), chloroform, tetrachloroethene (PCE), and trichloroethene (TCE).

2.2.1 Purging and Sampling

Groundwater samples were collected from PDBs in 10 of the monitoring wells sampled. The remaining four wells are outfitted with dedicated Waterloo Multilevel Sampling Systems and sample tubing. These four wells were sampled using pneumatic low-flow rate purging (micro-purging) sampling methods. Temperature, pH, turbidity, oxidation reduction potential, and dissolved oxygen were recorded during the purging and stabilization process. Purging continued until the parameters stabilized as specified in the QAPP (CPC, December 2020). The final, stabilized, values of these parameters are summarized in Table 2. Any exceptions to the stabilization criteria or sampling procedure for the groundwater samples collected in March 2023 are noted in Section 2.2.2.

2.2.2 Deviations from the Work Plan

A synopsis of deviations from the approved QAPP is listed below:

- MW-4A was not sampled due to insufficient water inside well. CPC will gauge this well two weeks prior to the 2023 second quarter sampling event. If there is adequate groundwater a passive diffusion bag will be installed and the well will be sampled during the 2023 second quarter groundwater sampling event.
- No other deviations from the approved QAPP during this sampling event.

2.3 GET Sampling

GET process samples were collected from the eight operational RWs and from the GET system influent and effluent during the March 2023 quarterly sampling event. One MS/MSD sample and one duplicate GET process water (system influent) sample were also collected and submitted for QA/QC purposes. All samples were collected from the individual well sample ports or from the sample ports on the piping for the GET combined influent and effluent flows in the GET system equipment room. All GET samples were analyzed for concentrations of carbon tetrachloride (CCL_4), chloroform, tetrachloroethylene (PCE), and trichloroethylene (TCE). GET system analytical results are summarized in Tables 5 and 6. Table 9 summarizes operational data for the GET system during the first quarter of 2023.

2.4 SVE Sampling

EPA obtained approval from Nebraska Department of Environment and Energy (NDEE) to shut down the SVE system and the system was shut down on October 25, 2022. On March 6, 2023 at 8:15 am CPC turned the SVE system on and let the components run for approximately 24 hours, per the accepted EPA procedure. During the March 2023 sampling event, nine (9) primary SVE soil gas samples were collected from SVE wells SVE -3, -4, -7, -8, -9, -10, -11, -12, and from the SVE system effluent. All SVE soil gas samples were grab samples collected at sample ports from individual SVE well lines. Additionally, one duplicate sample of the SVE system effluent was collected and submitted for QC purposes. All SVE samples were analyzed for concentrations of CCL_4, chloroform, and PCE. SVE analytical results are summarized in Tables 7 and 8. After sampling activities the SVE system was shut down and SVE wells secured until the second quarter 2023 sampling event. CPC will perform normal sampling from the SVE system during each sampling event. Prior to future sampling, CPC will turn the system on and let it run for approximately 24 hours and will strive to maintain a uniform pre-sampling run time to maintain comparability of sample results from one event to the next. After a one year period if concentrations stay below cleanup levels, EPA will evaluate concentration from the one year rebound sampling and may decide to permanently decommission the SVE system.

2.5 Quality Assurance/Quality Control & Data Evaluation

CPC collected appropriate QC samples during the March 2023 sampling event to evaluate data quality, in accordance with the project QAPP (CPC 2020). CPC evaluated QC samples collected from groundwater monitoring wells, RWs, the GET system, and the SVE system during the March 2023 sampling event to assess data quality and validity. When the parameters did not fall within the specific method or data review guidelines, the data evaluator annotated or "flagged" the corresponding compounds. As discussed below, all data fell within appropriate limits defined by the QAPP and is acceptable for decision-making purposes as qualified.

No results were rejected during data review and all data are considered usable by the project as qualified. Specific data evaluation and QA/QC samples are discussed below in Sections 2.5.1 and 2.5.2.

2.5.1 GET, Recovery Well, and Groundwater Monitoring Well QA/QC Samples

Matrix Spike/Matrix Spike Duplicates

During the March 2023 sampling event, two MS/MSD triple volume samples were collected and submitted to the laboratory. MS/MSD samples were collected from the recovery well RW-1 (2300072-01) and monitoring well MW-5B (2300072-26) and submitted to the laboratory.

Trip Blanks

One trip blank (2300072-27) was prepared by, and submitted to, the laboratory during the March 2023 sampling event and analyzed for CCL_4, chloroform, PCE, and TCE. No compounds were detected in the trip blank sample. Based upon the trip blank analytical results, infiltration of the target VOCs into sample containers did not occur during travel from the lab, while onsite, or during shipment to the laboratory. The reported data is considered to be valid and defensible for the stated purpose of the investigation.

Duplicate Samples

Duplicate samples were obtained from the GET process water influent (2300072-10) and monitoring well MW-4B (2300072-24) during the March 2023 sampling event. As shown in Table 3, the CCL_4 Relative Percent Differences (RPD) for the GET influent field duplicate and MW-4B were both 0.0 percent. Chloroform, PCE, and TCE were not detected in the primary or duplicate samples, therefore RPDs were 0 percent for both GET influent and MW-4B. The RPDs were below the acceptability standard of 30 percent stated in the project QAPP (CPC, December 2020). Therefore, the accuracy of the sampling results is within QA/QC goals for the project.

Equipment Rinsate Blank

The sample pumps and taps for the GET process water and RWs are components of the dedicated sampling system; additionally, monitoring wells were sampled via PDBs or dedicated Waterloo pumps with the use of YSI water quality meter and flow cell. Therefore, the equipment rinsate blank was collected by passing laboratory provided deionized water over decontaminated flow cell, YSI meter, and interface probe into a dedicated collection container. During the March 2023 sampling event, no compounds were detected in the equipment rinsate blank (2300072-28). As such, the reported detections from the GET system, RWs, and groundwater wells are considered to be valid and not influenced by cross contamination.

2.5.2 SVE Quality Assurance Samples

Duplicate Sample

One duplicate sample (2300073-10) was collected from the SVE combined effluent during the March 2023 sampling event and was analyzed for CCL_4, chloroform, and PCE. As shown on Table 3, the RPDs for CCL_4, chloroform, and PCE were 0.0 percent. All RPDs are less than the acceptability standard of 25 percent specified in the project QAPP (CPC 2020) and are sufficient for the project's QA/QC goals.

2.6 Equipment Decontamination

All sampling containers and/or equipment used during the March 2023 sampling event were single use (PDBs, disposable nitrile gloves, etc.) or dedicated to the wells (the Waterloo System wells). Therefore, decontamination of sample collection equipment was not necessary aside from the following:

- Decontamination of the electronic water level indicator was conducted by wiping the measuring tape with a disposable towel that was soaked with a Liquinox®-water mixture during the tape's retrieval from each measured well. The tape was further rinsed with deionized water to remove contaminants and the Liquinox® mixture.
- The multiparameter water quality meter and associated flow cell were disassembled and washed with a Liquinox®-water mixture then rinsed with deionized water following stabilization at MW-19A, -20A, -30A, and -31A.

2.7 Investigation-Derived Waste Management

Excess GET system process water, monitoring well purge water, excess groundwater from PDBs, and used decontamination fluids were managed as liquid investigation-derived waste. The liquid investigation-derived waste was temporarily stored in 35-gallon polyurethane tank (dedicated to the project) during the sampling event. At the end of the event, the tank was slowly drained into the GET system sump to not overload the sump pump and shutdown the GET system.

Used personal protective equipment and expendable sampling supplies were collected in garbage bags and disposed of as municipal solid waste. Empty distilled water containers were transported to the EPA Region 7 Lab for re-use and/or recycling.

3.0 MARCH 2023 QUARTERLY SAMPLING RESULTS

Based on the available geologic data, the aquifer beneath the Site has been divided into three aquifer zones as discussed in the Remedial Investigation (RI) Report (HGL, 2011). In this Data Evaluation Report, these zones will be called aquifer Zones A/B, C, and D/E. Their approximate upper and lower depths below ground surface (bgs) are:

- Zones A/B - Upper aquifer zone, extending from the water table to the top of the upper aquitard (approximately 115 to 125 feet below ground surface [ft bgs]).
- Zone C - Medial aquifer zone, extending from the base of the upper aquitard to the top of the lower aquitard (approximately 130 to 155 ft bgs).
- Zone D/E - Lower aquifer zone, extending from the base of the lower aquitard to the top of bedrock.
    - upper portion - Zone D (approximately 160 to 200 ft bgs)
    - lower portion - Zone E (approximately 200 to 235 ft bgs)

The discussion of results presented in the following subsections is based on these aquifer zones and is limited to the OU1 portion of the Garvey Elevator Site.

3.1 Groundwater Levels and Potentiometric Surface

For March 2023, CPC contoured to account for pumping. Contours and flow directions are dashed where inferred. The groundwater level measurements for March 2023 are shown in Table 1. Potentiometric surface maps for the March 2023 water level data were prepared based on the static water levels measured in the OU1 site MWs. The potentiometric surfaces for aquifer Zones A/B, C, and D/E are illustrated on Figures 3, 4, and 5 respectively. Based on the water level measurements, the potentiometric groundwater contours indicate the general direction of groundwater flow of the upper, middle, and lower aquifers at the site is from northwest to southeast on the western section of property and to the northwest to west on the eastern section of property. Groundwater flow maps depict a cone of depression bordering the western section of the rail line created by the recovery wells. The groundwater flow directions are generally consistent with historical site results and regional groundwater flow.

3.2 Analytical Results

During the March 2023 quarterly sampling event, groundwater samples were collected from fourteen (14) OU1 MWs. (As noted above, a groundwater sample could not be collected from MW-4A because of a lack of water in the well.) Additionally, RW and process water samples were collected from the GET system. Soil vapor samples were collected from eight (8) SVE wells and an SVE system process vapor sample was collected from the SVE effluent. The analytical results of the groundwater, process water, SVE well vapor, and process vapor samples are discussed in the following sections. The EPA Region 7 Laboratory analytical report for the groundwater and process water samples (WO 2300072) is included as Attachment 3a. The EPA Region 7 Laboratory analytical report for the SVE wells and SVE process vapor samples (WO 2300073) is included as Attachment 3b.

3.2.1 Groundwater Monitoring Well Analytical Results

All groundwater samples were analyzed for CCL_4, chloroform, PCE, and TCE. The March 2023 groundwater MW analytical results are summarized in Table 4 and illustrated in Figures 6 and 7.

As shown in Table 4, CCL_4 was detected at concentrations exceeding the cleanup level in the Interim ROD for the site. The ROD cleanup level for CCL_4 is the federal drinking water maximum contaminant level of 5 micrograms per liter (µg/L). CCL_4 was detected in 13 monitoring wells (and one duplicate sample) above laboratory method detection, and was detected above the ROD cleanup level of 5 µg/L in 8 monitoring wells (and one duplicate sample). The ranges of CCL_4 detections and the number of wells in which detections were reported during the March 2023 sampling event are shown on the following page by aquifer zone:

- Aquifer Zone A/B – Non-detect (1.0 µg/L) to 490 µg/L, detected in 10 of 11 wells; and
- Aquifer Zone C – 53 µg/L to 74 µg/L, detected in all three wells sampled.

The March 2023 analytical data results for aquifer Zones A/B and C are illustrated on Figures 6 and 7 respectively. Time series plots showing concentration trends for CCL_4 in the sampled monitoring wells are presented in Attachment 4.

During the March 2023 sampling event, groundwater samples were collected from eleven monitoring wells (MW-5A, -6A, -19A, -20A, -30A, -31A, -47B, -48B, -49B, -50B, and -51B) screened in aquifer zone A/B. The highest CCL_4 concentration in Zone A/B occurred in monitoring well MW-51B with a concentration of 490 µg/L. The detection 490 µg/L in MW-51B is lower than the greatest concentration detected at this sampling location (more than 2,200 µg/L in March 2021). The other CCL_4 detections ranged from 1.4 µg/L to 140 µg/L. CCL_4 was not detected in MW-20A.

CCL_4 levels in wells MW-5A, -6A, -19A, -30A, -47B, -50B increased from CCL_4 levels detected during fourth quarter 2022. CCL_4 in MW-20A has remained approximately the same since their last sampling event. CCL_4 concentrations decreased slightly from the values detected in fourth quarter 2022 in wells MW-31A, -48B, -49B, and -51B.

During the March 2023 sampling event, groundwater samples were collected from three monitoring wells (MW-3B, -4B, and -5B) screened in aquifer zone C. The highest CCL_4 concentration in zone C occurred in a MW-4B with a concentration of 74 µg/L. The concentrations of CCL_4 in aquifer zone C wells MW-3B, -4B, and 5B have all increased since their last sampling event.

Chloroform was detected at or above the detection limit of 1.0 µg/L in two monitoring wells (MW-31A and MW-51B) during March 2023. All detections (including the maximum March 2023 concentration of 4.2 µg/L) were more than one order of magnitude (OoM) below the ROD cleanup level of 70 µg/L. The three detections occurred in the A/B aquifer zone.

TCE and PCE were not detected in any of the MWs sampled during the March 2023 sampling event. The detection limit for TCE and PCE was 1.0 µg/L for all samples.

3.2.2 GET System Results

Process water samples were collected from the GET system influent and effluent during the March 2023 quarterly sampling event. A summary of the GET system analytical results is presented in Table 5. CCL_4 was detected in the GET system influent sample (8.6 µg/L) above the ROD clean-up level of 5 µg/L. CCL_4 was not detected at a detection limit of 1.0 µg/L in the March 2023 GET system effluent sample. Chloroform, PCE, and TCE were not detected in any of the March 2023 influent or effluent samples. The detection limit for these three COCs was 1.0 µg/L in March 2023.

During the March 2023 sampling event, groundwater samples were collected from 8 RWs (RW-1, -2, -3, -4, -5R, -6R, -7, and -8). The GET RW analytical results are summarized in Table 6. CCL_4 was detected in all RWs except RW-1. CCL_4 concentrations in five of the RWs were above the ROD clean-up level of 5 µg/L, with concentrations ranging from 1.1 µg/L to 21.0 µg/L.

Chloroform, PCE, and TCE were not detected in any of the RW samples. The detection limit for these COCs was 1.0 µg/L for all samples.

3.2.3 SVE Well and System Results

Process vapor primary and duplicate samples were collected from the SVE effluent during the March 2023 sampling event. The SVE effluent vapor sample results are provided in Table 7. CCL_4 was detected in the samples at a concentration of 1.2 µg/m^3 in the effluent primary and 1.2 µg/m^3 in the effluent duplicate sample. The CCL_4 detections are approximately four OoM less than the ROD clean-up level of 95,000 µg/m^3 for shallow wells and 130,000 µg/m^3 for deep wells.

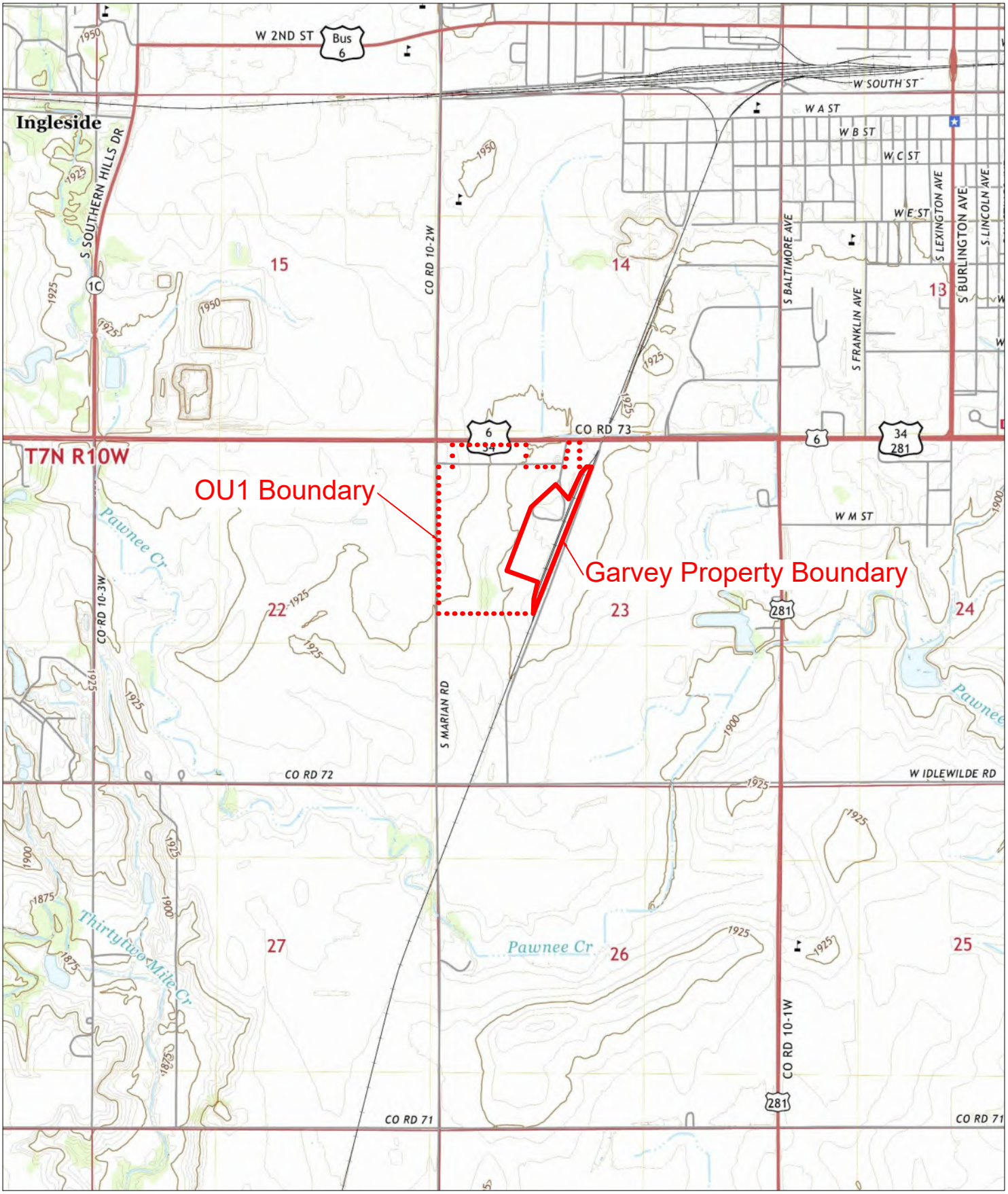
Chloroform and PCE were not detected in the SVE effluent primary and duplicate sample. The ROD did not establish cleanup levels for chloroform or PCE in SVE treatment system effluent.

In March 2023, soil vapor samples were collected from SVE wells SVE -3, -4, -7, - 8, -9, -10, -11, and -12. Results of the SVE well vapor samples are provided in Table 8. As noted above, the SVE system was shut down on October 25, 2022, therefore the results from March 2023 represent rebound concentrations. CCL_4 was detected in 8 wells at concentrations ranging from 41 µg/m^3 to 21,000 µg/m^3. All detections were less than the ROD clean-up levels of 95,000 µg/m^3 for shallow wells and 130,000 µg/m^3 for deep wells.

Chloroform was detected in 8 SVE well samples at concentrations ranging from 0.12 µg/m^3 to 35 µg/m^3. The ROD did not establish cleanup levels for chloroform.

PCE was detected in SVE-3, -4, -7, -8, 9, 10, and -11 with concentrations ranging from 0.38 µg/m^3 to 32.0 µg/m^3. PCE was below laboratory detection limit in SVE-12 during this sampling event. The ROD did not establish cleanup levels for PCE.

Appendix A
Figures



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Site Vicinity Map
Garvey Elevator
2315 US Highway 6
Hastings, Nebraska

DWN BY	SCALE	
SLH	1" = 2,000'	
DATE	JOB NUMBER	Figure
4/10/2023	204EM03198	1

N

LEGEND

- Monitoring Well
- Multi-Level Well
- Recovery Well
- SVE Well
- Injection Well
- System Piping

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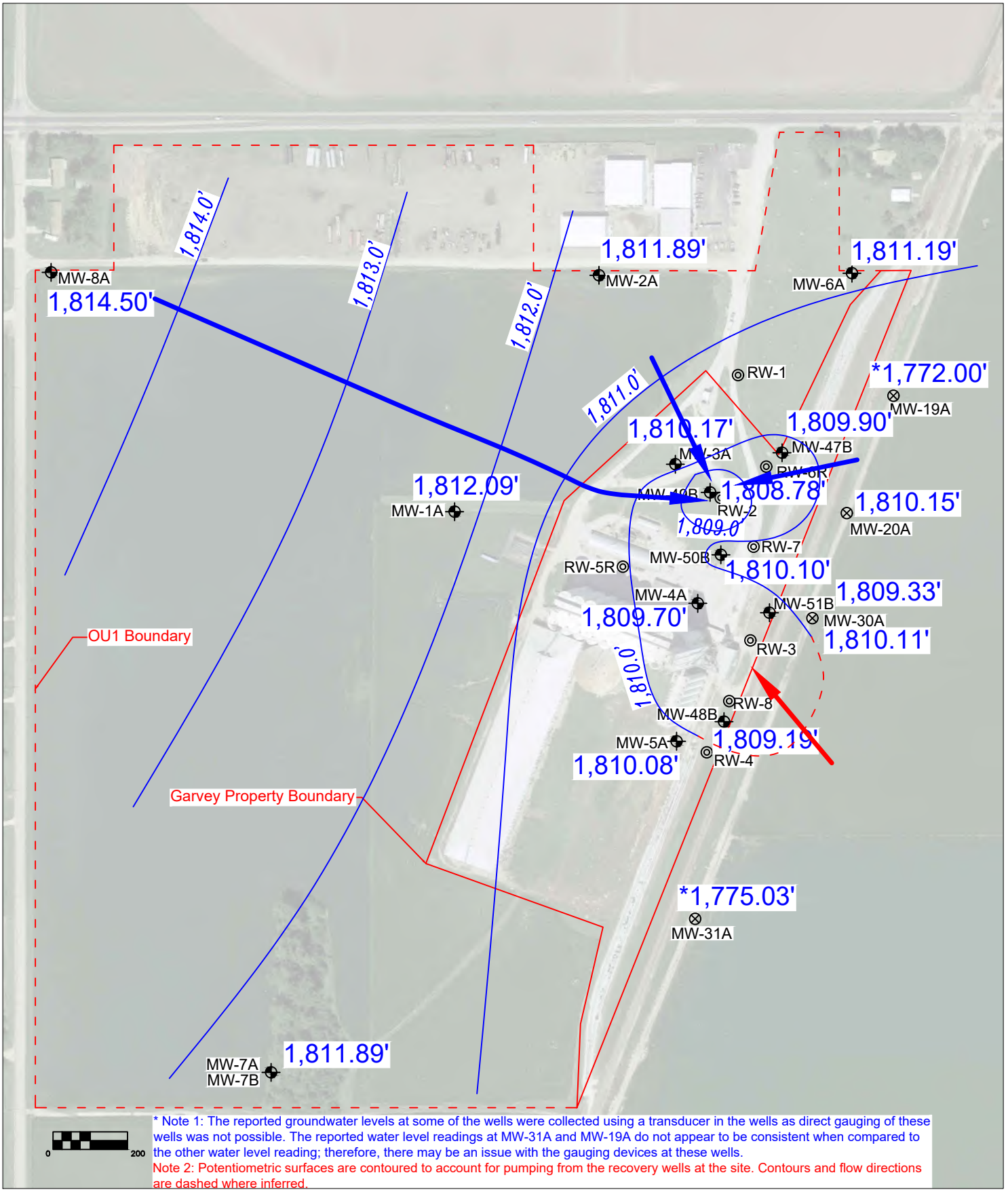
Site Plan: Monitoring Wells Sampled (3/23)
All Aquifers
Garvey Elevator
2315 US Highway 6
Hastings, Nebraska

DWN BY	SCALE	
SLH	1" = 350'	
DATE	JOB NUMBER	Figure
3/6/2023	204EM03198	2



* Note 1: The reported groundwater levels at some of the wells were collected using a transducer in the wells as direct gauging of these wells was not possible. The reported water level readings at MW-31A and MW-19A do not appear to be consistent when compared to the other water level reading; therefore, there may be an issue with the gauging devices at these wells.

Note 2: Potentiometric surfaces are contoured to account for pumping from the recovery wells at the site. Contours and flow directions are dashed where inferred.

N

LEGEND

- Monitoring Well
- Multi-Level Well
- Recovery Well
- SVE Well
- Injection Well
- System Piping

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Groundwater Flow Map: March 2023
Upper Aquifer Zone
Garvey Elevator
2315 US Highway 6
Hastings, Nebraska

DWN BY	SCALE	
SLH	1" = 350'	
DATE	JOB NUMBER	Figure
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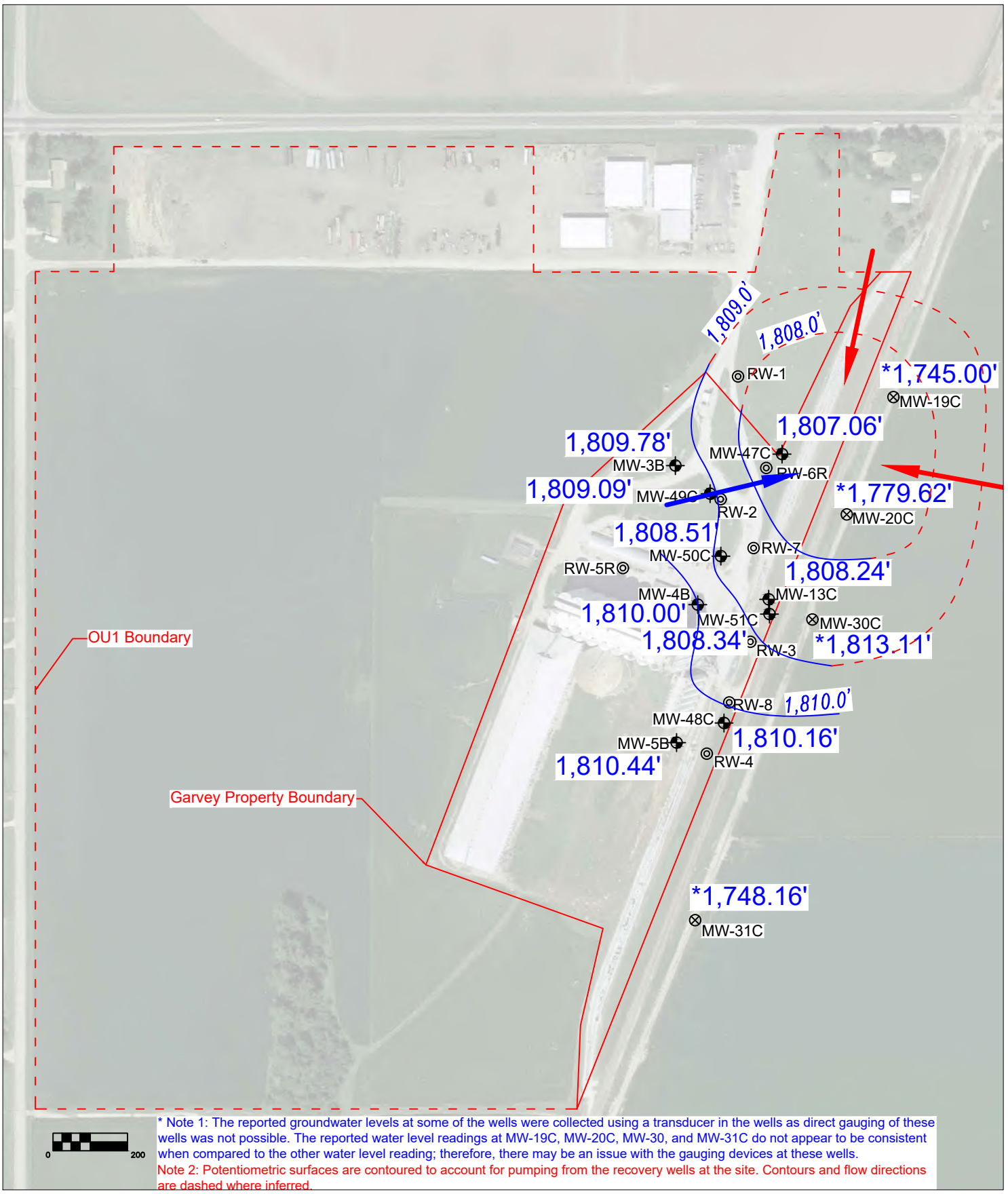

* Note 1: The reported groundwater levels at some of the wells were collected using a transducer in the wells as direct gauging of these wells was not possible. The reported water level readings at MW-19C, MW-20C, MW-30, and MW-31C do not appear to be consistent when compared to the other water level reading; therefore, there may be an issue with the gauging devices at these wells.
Note 2: Potentiometric surfaces are contoured to account for pumping from the recovery wells at the site. Contours and flow directions are dashed where inferred.

N

LEGEND

- Monitoring Well
- Multi-Level Well
- Recovery Well
- SVE Well
- Injection Well
- System Piping

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Groundwater Flow Map: March 2023
Middle Aquifer Zone
Garvey Elevator
2315 US Highway 6
Hastings, Nebraska

DWN BY	SCALE	
SLH	1" = 350'	
DATE	JOB NUMBER	Figure
4/19/2023	204EM03198	4

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LEGEND
Monitoring Well
Multi-Level Well
Recovery Well
SVE Well
Injection Well
System Piping

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Groundwater Flow Map: March 2023
Lower Aquifer Zone
Garvey Elevator
2315 US Highway 6
Hastings, Nebraska

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DATE	JOB NUMBER	Figure
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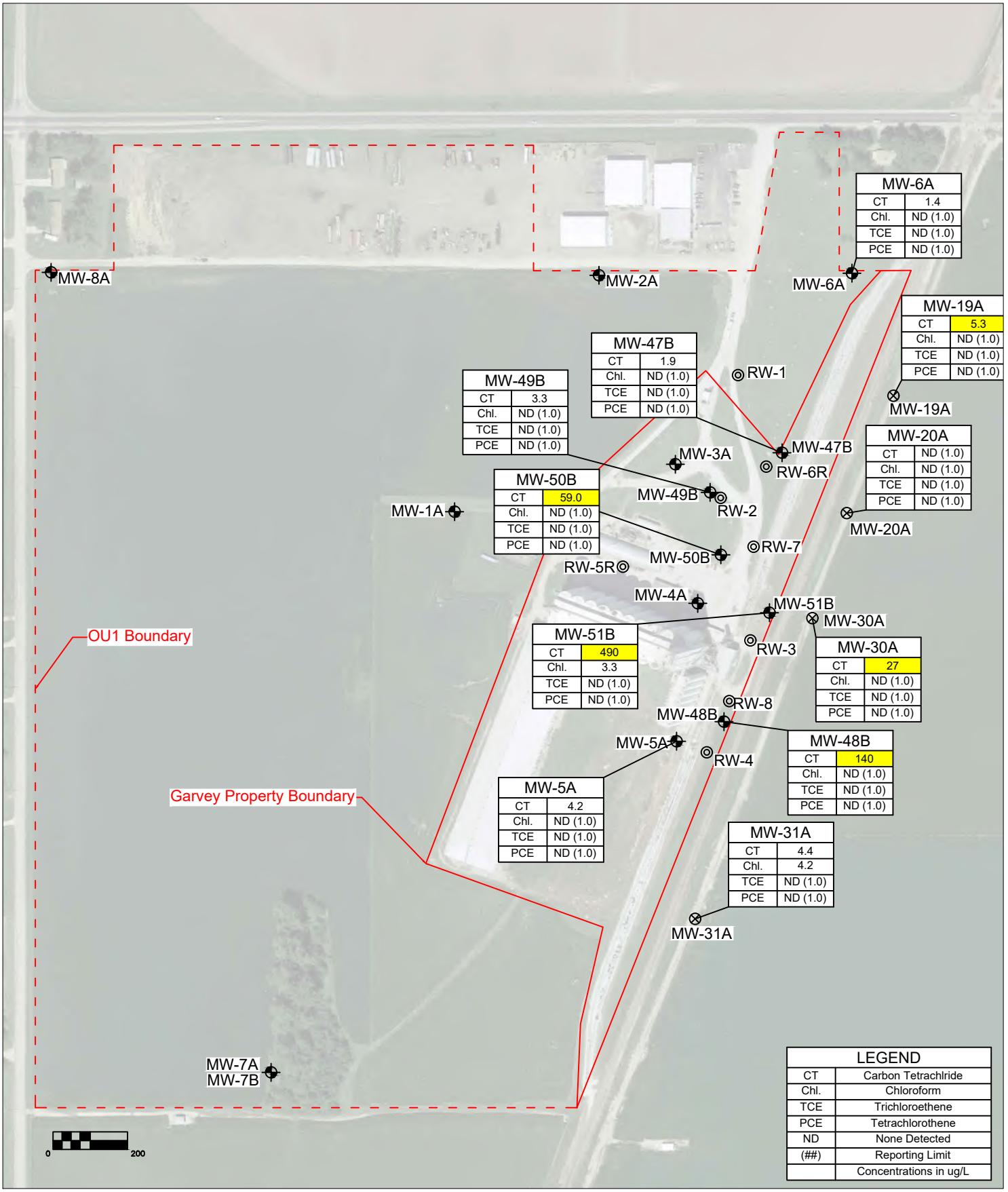

N

LEGEND

- Monitoring Well
- Multi-Level Well
- Recovery Well
- SVE Well
- Injection Well
- System Piping

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GW Sample Results: March 2023
Upper Aquifer Zone
Garvey Elevator
2315 US Highway 6
Hastings, Nebraska

DWN BY	SCALE	
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DATE	JOB NUMBER	Figure
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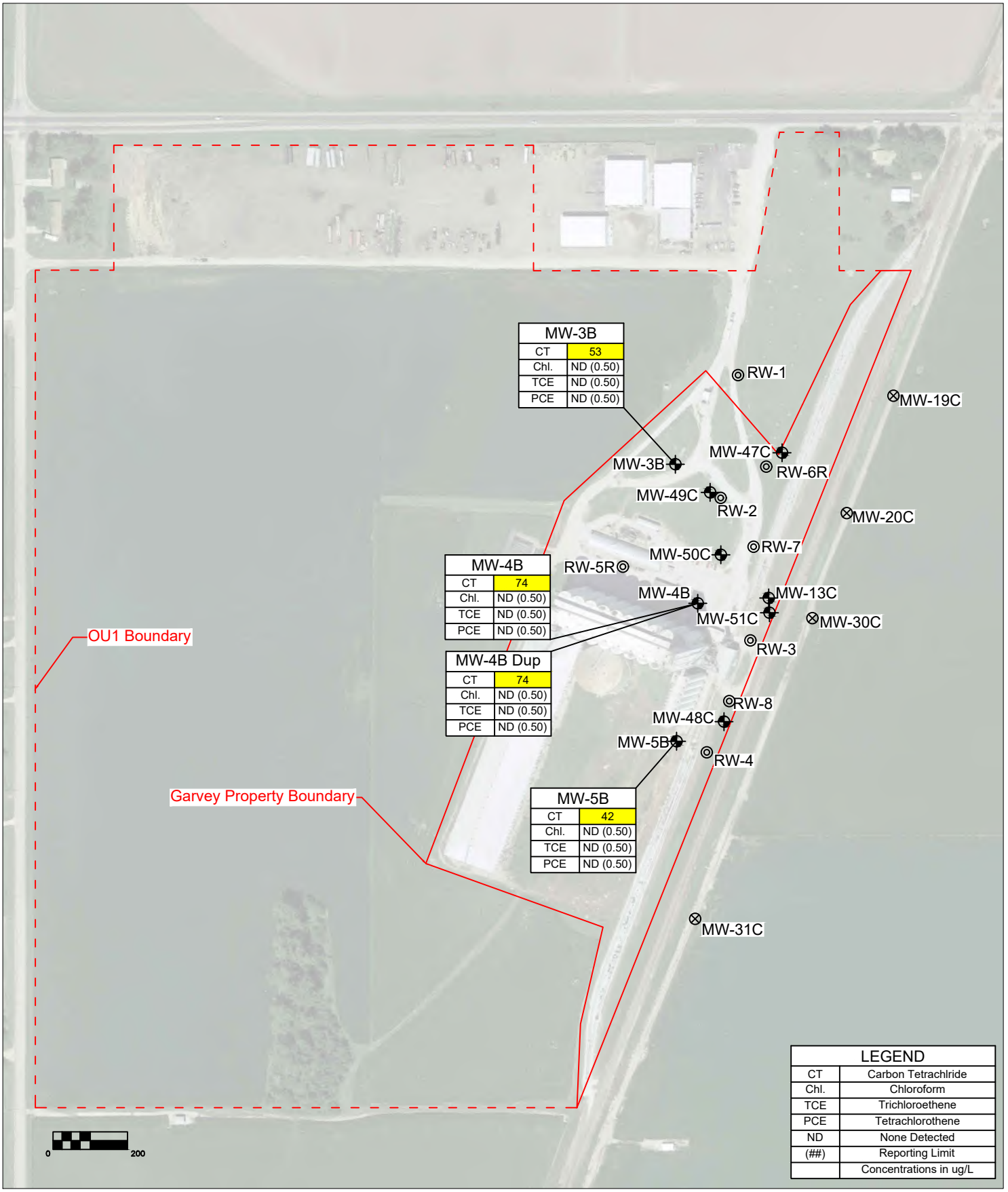

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- Monitoring Well
- Multi-Level Well
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GW Sample Results: March 2023
Middle Aquifer Zone
Garvey Elevator
2315 US Highway 6
Hastings, Nebraska

DWN BY	SCALE	
SLH	1" = 350'	
DATE	JOB NUMBER	Figure
4/10/2023	204EM03198	7

Appendix B
Tables

Table 1
Water Level Measurement Data
March 6, 2023 Quarterly Sampling Event
Garvey Elevator OU1
Hastings, Nebraska

Well	Depth to Water (ft btoc)	TOC Elevation	Water Level Elevation (ft MSL)	Aquifer Zone
MW-1A	114.99	1927.08	1812.09	A/B
MW-2A	118.33	1930.22	1811.89	A/B
MW-3A	124.10	1934.27	1810.17	A/B
MW-3B	122.97	1932.75	1809.78	C
MW-3D	122.75	1933.37	1810.62	D/E
MW-3E	121.75	1932.25	1810.50	D/E
MW-4A	121.90	1931.60	1809.70	A/B
MW-4B	121.38	1931.38	1810.00	C
MW-5A	120.18	1930.26	1810.08	A/B
MW-5B	121.28	1931.72	1810.44	C
MW-5D	121.62	1931.87	1810.25	D/E
MW-6A	120.80	1931.99	1811.19	A/B
MW-6D	121.28	1931.14	1809.86	D/E
MW-6E	122.20	1932.13	1809.93	D/E
MW-7A	111.33	1923.22	1811.89	A/B
MW-8A	128.72	1943.22	1814.50	A/B
MW-13C	121.41	1929.65	1808.24	C
MW-13E	120.50	1930.43	1809.93	D/E
MW-19A*	157.21	1929.21	1772.00	A/B
MW-19C*	184.21	1929.21	1745.00	A/B
MW-20A*	119.06	1929.21	1810.15	A/B
MW-20C*	149.59	1929.21	1779.62	A/B
MW-20D*	132.07	1929.21	1797.14	A/B
MW-20E*	222.73	1929.21	1706.48	A/B
MW-30A*	120.17	1930.28	1810.11	A/B
MW-30C*	117.17	1930.28	1813.11	A/B
MW-30D*	119.91	1920.28	1800.37	A/B
MW-30E*	119.72	1930.28	1810.56	A/B
MW-31A*	156.60	1931.63	1775.03	A/B
MW-31C*	183.47	1931.63	1748.16	A/B
MW-47B	122.19	1932.09	1809.90	A/B
MW-47C	125.03	1932.09	1807.06	C
MW-47D	124.07	1932.10	1808.03	D/E
MW-48B	121.86	1931.05	1809.19	A/B
MW-48C	120.87	1931.03	1810.16	C
MW-48D	121.77	1931.05	1809.28	D/E
MW-49B	122.68	1931.46	1808.78	A/B

Well	Depth to Water (ft btoc)	TOC Elevation	Water Level Elevation (ft MSL)	Aquifer Zone
MW-49C	122.38	1931.47	1809.09	C
MW-49D	121.15	1931.46	1810.31	D/E
MW-50B	121.41	1931.51	1810.10	A/B
MW-50C	123.03	1931.54	1808.51	C
MW-50D	121.34	1931.46	1810.12	D/E
MW-51B	122.27	1931.60	1809.33	A/B
MW-51C	123.28	1931.62	1808.34	C
MW-51D	121.71	1931.62	1809.91	D/E

* - Manual water level measurement cannot be made for this well.

Detected water inside end cap of well. (Not representative of true water level)

Table 2

Summary of Field Parameter Results

March 2023 Quarterly Sampling Event

Garvey Elevator OU1

Hastings, Nebraska

Sample Location	Sample Collection Date	EPA Sample Designation	Temperature (°C)	pH (SU)	Specific Conductivity (mS/cm)	Total Dissolved Oxygen (mg/L)	ORP (mV)
MW-19A	03/07/2023	2300072-15	10.24	7.37	0.901	4.81	2.4
MW-20A	03/07/2023	2300072-14	8.90	6.88	0.841	0.29	-23.9
MW-30A	03/07/2023	2300072-13	9.87	7.18	0.789	12.16	12.4
MW-31A	03/07/2023	2300072-12	8.06	7.04	0.947	1.00	-31.9

NA - Not Applicable

N/S - Not Sampled

Table 3

March 2023 Quarterly Sampling Relative Percent Difference Calculations

Garvey Elevator OU1

Hastings, Nebraska

GET System Process Water

Contaminant	GET System Influent				
	2300072-09		2300072-10		RPD %
Carbon Tetrachloride [µg/L]	8.6		8.6		0.0
Chloroform [µg/L]	<1.0	U	<1.0	U	0*
Tetrachloroethylene [µg/L]	<1.0	U	<1.0	U	0*
Trichloroethylene [µg/L]	<1.0	U	<1.0	U	0*

Acceptable RPD range for GET process water samples is 0-30% as per the QAPP (CPC 2020).

SVE System Effluent Process Vapor

Contaminant	SVE System Effluent				
	2300073-09		2300073-10		RPD %
Carbon Tetrachloride [µg/L]	1.20		1.20		0.0
Chloroform [µg/L]	<0.12	U	<0.12	U	0*
Tetrachloroethene [µg/L]	<0.34	U	<0.34	U	0*
Trichloroethene [µg/L]	N/S		N/S		N/S

Acceptable RPD range for SVE well and SVE process vapor samples is 0-25% as per the QAPP (COC 2020).

N/S - Not Sampled

Monitoring Well Groundwater

Contaminant	MW-4B				
	2300072-23		2300072-24		RPD %
Carbon Tetrachloride [µg/L]	74.0		74.0		0.0
Chloroform [µg/L]	<1.0	U	<1.0	U	0*
Trichloroethene [µg/L]	<1.0	U	<1.0	U	0*
Tetrachloroethene [µg/L]	<1.0	U	<1.0	U	0*

Acceptable RPD range for groundwater samples is 0-30% as per the QAPP (CPC 2020).

Note - **Bold** RPD values indicate that results exceed the RPD criteria in the Quality Assurance Project Plan.

U - not detected

RPD - relative percent difference

* While technically an RPD cannot be calculated if both the primary and duplicate results are non-detect, this situation is generally considered to be equivalent to an RPD of 0.

Table 4

Groundwater Monitoring Well Analytical Results Summary
March 2023 Quarterly Sampling Event
Garvey Elevator OU-1
Hastings, Nebraska

Sample Point Designation	Sample Collection Date	EPA Laboratory ID	Carbon Tetrachloride [µg/L]	Chloroform [µg/L]	TCE [µg/L]	PCE [µg/L]
Cleanup Levels			5.0 (1)	70.0 (1)	5.0 (2)	5.0 (2)
MW-3B	03/08/2023	2300072-19	***53***	ND (1.0)	ND (1.0)	ND (1.0)
MW-4A	Sample not collected due to low groundwater					
MW-4B	03/08/2023	2300072-23	***74***	ND (1.0)	ND (1.0)	ND (1.0)
MW-4B Dup	03/08/2023	2300072-24	***74***	ND (1.0)	ND (1.0)	ND (1.0)
MW-5A	03/08/2023	2300072-25	**4.2**	ND (1.0)	ND (1.0)	ND (1.0)
MW-5B*	03/08/2023	2300072-26	***42***	ND (1.0)	ND (1.0)	ND (1.0)
MW-6A	03/08/2023	2300072-18	**1.4**	ND (1.0)	ND (1.0)	ND (1.0)
MW-19A	03/07/2023	2300072-15	***5.3***	ND (1.0)	ND (1.0)	ND (1.0)
MW-20A	03/07/2023	2300072-14	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
MW-30A	03/07/2023	2300072-13	***27***	ND (1.0)	ND (1.0)	ND (1.0)
MW-31A	03/07/2023	2300072-12	**4.4**	**4.2**	ND (1.0)	ND (1.0)
MW-47B	03/08/2023	2200459-21	**1.9**	ND (1.0)	ND (1.0)	ND (1.0)
MW-48B	03/08/2023	2300072-16	***140***	ND (1.0)	ND (1.0)	ND (1.0)
MW-49B	03/08/2023	2300072-20	**3.3**	ND (1.0)	ND (1.0)	ND (1.0)
MW-50B	03/08/2023	2300072-22	***59.0***	ND (1.0)	ND (1.0)	ND (1.0)
MW-51B	03/08/2023	2300072-17	***490***	**3.3**	ND (1.0)	ND (1.0)

Bold font indicates that the contaminant was detected.

Italicized Denotes detected value greater than ROD level shown.

* - MS/MSD volume collected.

(1) Cleanup levels from Table 10, Interim Record of Decision, Garvey Elevator Superfund Site, OU 1 and OU 2, Hastings, Nebraska, September 2013.

(2) Safe Drinking Water Act Maximum Contaminant Level.

Aquifer Zone C Wells.

Table 5

Summary of GET System Results

March 2023 Sampling Event

Garvey Elevator OU1

Hastings, Nebraska

Sample Point Designation	Sample Collection Date	EPA Laboratory ID	Carbon Tetrachloride [ug/L]	Chloroform [ug/L]	Tetrachloroethene [ug/L]	Trichloroethene [ug/L]
Cleanup Levels			5.0 (1)	70.0 (1)	5.0 (1)	5.0 (1)
Influent	3/6/2023	2300072-09	***8.6***	ND (1.0)	ND (1.0)	ND (1.0)
Influent Field Duplicate	3/6/2023	2200072-10	***8.6***	ND (1.0)	ND (1.0)	ND (1.0)
Effluent	3/6/2023	2200072-11	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)

(1) Maximum contaminant levels from Safe Drinking Water Act.

ND – Not detected above the reporting limit, which is indicated within the ( ).

FD – Field duplicate.

ug/L – micrograms per liter.

Italicized Denotes detected value greater than ROD level shown.

Bold font indicates that the contaminant was detected.

Table 6

GET Recovery Well Water Analytical Results Summary
March 2023 Quarterly Sampling Event
Garvey Elevator OU1
Hastings, Nebraska

Sample Location	Collection Date	EPA Laboratory ID	Carbon Tetrachloride [ug/L]	Chloroform [ug/L]	TCE [ug/L]	PCE [ug/L]
Cleanup Levels			5.0 (1)	70.0 (1)	5.0 (2)	5.0 (2)
RW-1*	03/06/2023	2300072-01	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
RW-2	03/06/2023	2300072-02	***10.0***	ND (1.0)	ND (1.0)	ND (1.0)
RW-3	03/06/2023	2300072-03	***19.0***	ND (1.0)	ND (1.0)	ND (1.0)
RW-4	03/06/2023	2300072-04	***8.0***	ND (1.0)	ND (1.0)	ND (1.0)
RW-5R	03/06/2023	2300072-05	**1.1**	ND (1.0)	ND (1.0)	ND (1.0)
RW-6R	03/06/2023	2300072-06	**3.2**	ND (1.0)	ND (1.0)	ND (1.0)
RW-7	03/06/2023	2300072-07	***21.0***	ND (1.0)	ND (1.0)	ND (1.0)
RW-8	03/06/2023	2300072-08	***6.2***	ND (1.0)	ND (1.0)	ND (1.0)

ND – Not detected above the reporting limit, which is indicated within the ( ).

Italicized Detected value greater than cleanup level.

* - MS/MSD volume collected.

(1) Cleanup levels from Table 10, Interim Record of Decision, Garvey Elevator Superfund Site, OU 1 and OU 2, Hastings, Nebraska, September 2013.

(2) Safe Drinking Water Act Maximum Contaminant Level.

Bold font indicates that the contaminant was detected.

Table 7
Summary of SVE Effluent Results
March 2023 Sampling Event
Garvey Elevator OU1
Hastings, Nebraska

Sample Point Designation	Sample Collection Date	EPA Laboratory ID	Carbon Tetrachloride [ug/m^3]	Chloroform [ug/m^3]	Tetrachloroethene [ug/m^3]
Cleanup Levels[(1)]			95,000 [(2)] / 130,000 [(3)]	NA	NA
Effluent	3/7/2023	2300073-09	**1.20**	<0.12	<0.34
Effluent Field Duplicate	3/7/2023	2300073-10	**1.20**	<0.12	<0.34

[(1)] Cleanup levels derived based on the soil concentration above which leaching to groundwater causes an exceedance of MCLs. From Table 10 in the Interim Record of Decision (ROD), Garvey Elevator Superfund Site, OU 1 and OU 2, Hastings, Nebraska, September 2013.

[(2)] Cleanup level for Fine-Grained Subsurface Soil. Fine-grained material defined as the upper 65 ft of loess and interbedded unsaturated soils beneath OU1. From Table 10 of the 2013 Interim ROD.

[(3)] Cleanup level for Course-grained Subsurface Soil. Coarse-grained material defined as the unsaturated soil beneath the upper fine-grained material at OU 1. From Table 10 of the 2013 Interim ROD.

FD – Field duplicate.

NA – Not Applicable. No cleanup level listed in the 2013 Interim ROD for this chemical. ug/m3 – micrograms per cubic meter.

Bold font indicates that the contaminant was detected.

Table 8
SVE Well Analytical Results Summary
March 2023 Quarterly Sampling Event
Garvey Elevator OU1
Hastings, Nebraska

Sample	Collection Date	EPA Laboratory ID	Carbon Tetrachloride [µg/m3]	Chloroform [µg/m3]	PCE [µg/m3]
Shallow SVE Wells[1]					
Cleanup Level[2]			95,000	NA	NA
SVE-3	03/07/2023	2300073-01	**41**	**0.85 J**	**0.38**
SVE-4	03/07/2023	2300073-02	**85**	**1.6 J**	**0.80**
SVE-7	03/07/2023	2300073-03	**21,000**	**35 J**	**32.0**
SVE-8	03/07/2023	2300073-04	**71**	**1.0**	**1.30**
SVE-12	03/07/2023	2300073-08	**13.0**	**0.12**	<0.34
Deep SVE Wells[3]					
Cleanup Level[4]			130,000	NA	NA
SVE-9	03/07/2023	2300073-05	**300**	**0.61**	**0.48**
SVE-10	03/07/2023	2300073-06	**310**	**0.59**	**0.49**
SVE-11	03/07/2023	2300073-07	**380**	**0.62**	**0.61**

ND – Not detected above the reporting limit, which is indicated within the ( ).

Bold font indicates that the contaminant was detected.

##.## Detected value greater than cleanup level.

Dup - Duplicate Sample

[1] Shallow wells are located in the shallow fine-grained subsurface soil, which are defined in the Interim Record of Decision, Garvey Elevator Superfund Site, OU 1 and OU 2, Hastings, Nebraska, September 2013 (the 2013 Interim ROD) as the upper 65 ft of loess and interbedded unsatruated soils beneath OU 1.

[2] Fine-grained subsurface soil cleanup level from Table 10 of the 2013 Interim ROD.

[3] Deep wells are located in the coarse-grained subsurface soils, which is defined in the 2013 Interim ROD as the unsaturated soils beneath the upper fine grained materials at OU 1.

[4] Coase-grained subsurface soil cleanup level from Table 10 of the 2013 Interim ROD.

Wells not listed (SVE -1, -2, -5, and -6 [shallow]) were not sampled in March 2023.

Table 9

GET Recovery Well First Quarter 2023 Operational Data Summary Garvey Elevator OU1

Hastings, NE

Period Start	1/1/23 Nearest Inspection Date			01/4/2023						
Period End	3/31/23 Nearest Inspection Date			03/27/2023						
Recovery Well	**Quarter Sample Date**	**Period Cumulative Volume (gal) as of 3/27/2023**	**Previous Period's Cumulative Volume (gal) as of 12/30/2022**	**Cumulative Volume Pumped During Period (gal)**	**Period Length (days)[1]**	**Calculated Period Pumping Rate (gal per min)**	**Total Hour During Period**	**Percent of Time Operated in the Period**	**Average Flow Rate During Period (gpm)[2]**	**Comments**
RW-1	03/6/2023	7,341,863	6,978,911	362,952	90	2.8	2160	97%	2.90	De-watering well at higher pump rates
RW-2	03/6/2023	13,603,857	12,726,322	877,535	90	6.8	2160	97%	7.00	De-watering well at higher pump rates
RW-3	03/6/2023	8,149,391	7,685,776	463,615	90	3.6	2160	88%	4.06	De-watering well at higher pump rates
RW-4	03/6/2023	14,732,825	13,965,997	766,828	90	5.9	2160	90%	6.54	De-watering well at higher pump rates
RW-5R	03/6/2023	10,274,304	9,921,210	353,094	90	2.7	2160	96%	2.84	De-watering well at higher pump rates
RW-6R	03/6/2023	207,312,928	203,103,536	4,209,392	90	32.5	2160	58%	55.73	Pump not working from 1/16/23 to 2/27/23
RW-7	03/6/2023	138,106,320	130,643,808	7,462,512	90	57.6	2160	97%	59.45	De-watering well at higher pump rates
RW-8	03/6/2023	231,881,472	219,349,488	12,531,984	90	96.7	2160	96%	100.45	

[1] Period Length and remaining calculations based on the closest inspection dates to the start and end of the period, not the period start and end dates.

[2] Averge Flow Rate is the average recorded from system computer during O&M site visits during the period.

Appendix C
Attachments

Attachment 1a:
Field Logbook Pages and Field Sheets for WOs 2300072 & 2300073

MANUAL FLUID LEVEL MEASUREMENTS IN WELLS

FIGURE 1. EXAMPLE FIELD DATA SHEET

PAGE 1 OF 5

SITE NAME: Garvey
LOGGER NAME: JC/BT
SITE LOCATION: Hastings Nebraska
ERT WAM:
LOG DATE: 3/6/23
WA#

Time	Well I.D.	Latitude	Longitude	Elevation of well (TOC)	Depth to bottom of well (feet)	Depth to water (feet)	Depth to product (feet), if any	Product type/ Product thickness	COMMENTS (pH, temperature, specific conductance, weather conditions)
1250	MW-1A					114.99	–	–	
1209	MW-2A					118.33	–	–	
1255	MW-3A					124.10	–	–	
1257	MW-3B					122.97	–	–	
1259	MW-3D					121.75	–	–	
1301	MW-3E					122.75	–	–	
1342	MW-4A				122.05	Dry (121.90)	–	–	(121.90)
1340	MW-4B					121.38	–	–	
1240	MW-5A					120.18	–	–	

TOC = Top of casing

NOTES:

MEASUREMENT REFERENCE POINT FROM_____GROUND SURFACE OR__X__TOP OF CASING

Weather Conditions: Temperature (°F/°C): 36

Rain: Heavy: ____Medium:____ Light:____ none

Barometric Pressure: ____

Other significant observations:

MANUAL FLUID LEVEL MEASUREMENTS IN WELLS

FIGURE 1. EXAMPLE FIELD DATA SHEET

SITE NAME: Garvey
SITE LOCATION: Hastings Nebraska
LOG DATE: 3/16/22

LOGGER NAME: SC/BT
ERT WAM:
WA#

Time	Well I.D.	Latitude	Longitude	Elevation of well (TOC)	Depth to bottom of well (feet)	Depth to water (feet)	Depth to product (feet), if any	Product type/ Product thickness	COMMENTS (pH, temperature, specific conductance, weather conditions)
1238	MW-5B					121.28	–	–	
1235	MW-5D					121.62	–	–	
1217	MW-6A					120.80	–	–	
1215	MW-6D					121.28	–	–	
1219	MW-6E					122.20	–	–	
1156	MW-7A					111.33	–	–	
1434	MW-8A					128.72	–	–	
13:09	MW-13C					~~121.86~~	121.41		
13:16	MW-13D					120.5			

TOC = Top of casing

NOTES:

MEASUREMENT REFERENCE POINT FROM_____GROUND SURFACE OR_X_TOP OF CASING

Weather Conditions: Temperature (°F/°C): 36°

Rain: Heavy: ____Medium:____ Light:____ None

Barometric Pressure: ____

Other significant observations:

MANUAL FLUID LEVEL MEASUREMENTS IN WELLS

FIGURE 1. EXAMPLE FIELD DATA SHEET

PAGE 3 OF 5

SITE NAME: Garvey
SITE LOCATION: Hastings Nebraska
LOG DATE: 3/6/23

LOGGER NAME: JC/BT
ERT WAM:
WA#

Time	Well I.D.	Latitude	Longitude	Elevation of well (TOC)	Depth to bottom of well (feet)	Depth to water (feet)	Depth to product (feet), if any	Product type/ Product thickness	COMMENTS (pH, temperature, specific conductance, weather conditions)
1339	MW-19A					157.21			
	MW-19C					184.21			
	MW-20A					119.04			
	MW-20C					149.59			
	MW-20D					132.07			
	MW-20E					222.73			
	MW-30A					120.17			
	MW-30C					117.17			
	MW-30D					119.91			

TOC = Top of casing

NOTES:

MEASUREMENT REFERENCE POINT FROM_____GROUND SURFACE OR__X__TOP OF CASING

Weather Conditions: Temperature (°F/°C):__36°____

Rain: Heavy: ____Medium:____ Light:____

Barometric Pressure: ____

Other significant observations:

MANUAL FLUID LEVEL MEASUREMENTS IN WELLS

FIGURE 1. EXAMPLE FIELD DATA SHEET

PAGE 4 OF 5

SITE NAME: Garvey
LOGGER NAME: JC/BT
SITE LOCATION: Hastings Nebraska
ERT WAM:
LOG DATE: 3/6/23
WA#

Time	Well I.D.	Latitude	Longitude	Elevation of well (TOC)	Depth to bottom of well (feet)	Depth to water (feet)	Depth to product (feet), if any	Product type/ Product thickness	COMMENTS (pH, temperature, specific conductance, weather conditions)
1337	MW-30E					119.72			
1337	MW-31A					156.60			
1337	MW-31C					183.47			
1225	MW-47B					122.19			
1222	MW-47C					125.03			
1229	MW-47D					124.07			
1245	MW-48B					121.86			
1249	MW-48C					120.97			
1251	MW-48D					121.77			

TOC = Top of casing

NOTES:

MEASUREMENT REFERENCE POINT FROM_____GROUND SURFACE OR__X__TOP OF CASING

Weather Conditions: Temperature (°F/°C): 36°

Rain: Heavy: ____Medium:____ Light:____

Barometric Pressure: ____

Other significant observations:

MANUAL FLUID LEVEL MEASUREMENTS IN WELLS

FIGURE 1. EXAMPLE FIELD DATA SHEET

SITE NAME: Garvey
LOGGER NAME: JC/BT
SITE LOCATION: Hastings Nebraska
ERT WAM:
LOG DATE: 3/6/23
WA#

Time	Well I.D.	Latitude	Longitude	Elevation of well (TOC)	Depth to bottom of well (feet)	Depth to water (feet)	Depth to product (feet), if any	Product type/ Product thickness	COMMENTS (pH, temperature, specific conductance, weather conditions)
1323	MW-49B					122.68			
1325	MW-49C					122.38			
1327	MW-49D					121.15			
1331	MW-50B					121.41			
1333	MW-50C					123.03			
1334	MW-50D					121.34			
1304	MW-51B					122.27			
1259	MW-51C					123.28			
1302	MW-51D					121.71			

TOC = Top of casing

NOTES:

MEASUREMENT REFERENCE POINT FROM_____GROUND SURFACE OR__X__TOP OF CASING

Weather Conditions: Temperature (°F/°C): 36°

Rain: Heavy: ____Medium:____ Light:____

Barometric Pressure: ____

Other significant observations:

Air Sampling
Garvey Elevator Federal Superfund Site
Hastings Nebraska

Sample Location	Canister I.D.	EPA Sample Number	Initial Pressure (Hg)	Final Pressure (Hg)	Time (AM/PM)	Date
SVE-1	-	-	-	-	-	-
SVE-2	-	-	-	-	-	-
SVE-3	697	2300073-01	27.5	~~2~~ 1.5	0828	3/7/23
SVE-4	857	2300073-02	27.5	2.5	831	3/7/23
SVE-5	-	-	-	-	-	-
SVE-6	-	-	-	-	-	-
SVE-7R	810	2300073-03	27.5	1.5	0836	3/7/23
SVE-8	895	2300073-04	27.5	1.5	0838	3/7/23
SVE-9	930	2300073-05	27.5	0.5	0841	3/7/23
SVE-10	918	2300073-06	27.5	0.5	0844	3/7/23
SVE-11	601	2300073-07	27.5	3.5	0847	3/7/23
SVE-12	602	2300073-08	27.5	4.0	0850	3/7/23
Effluent	896	2300073-09	27.5	4.0	0900	3/7/23
Field Dup	767	2300073-10	26.5	2.0	0900	3/7/23

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: ~~3-6-23~~	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT: 2nd Qtr
WELL ID: RW-1	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☐ GOOD ☐ REPLACE #____ ☐ N/A	BOLLARDS: ☐ GOOD ☐ REPAIR #____ ☐ N/A
LOCK: ☐ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☐ GOOD ☐ REPLACE	PAD: ☐ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 30
REVIEWED BY: JC	PERSONNEL: JCB - BT

WELL DIAMETER: 1" 2" 4"	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

GROUNDWATER SAMPLING	
START:	
FINISH:	
VOLUME PURGED (gal):	

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
							Well Goes Dry While Purging ☐						

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: Grab

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
2300072-01	3-6-23	0855	9	N	MS/MSD
2300072-~~02~~ 07	3/1 to 3/8	830-1006	3	N	Trip Blank

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 3-6-23	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT: 1 of 4
WELL ID: RW-2	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☐ GOOD ☐ REPLACE #____ ☐ N/A	BOLLARDS: ☐ GOOD ☐ REPAIR #____ ☐ N/A	
LOCK: ☐ GOOD ☐ REPLACE ☐ N/A		EXPANSION CAP: ☐ GOOD ☐ REPLACE	PAD: ☐ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 30's
REVIEWED BY: JC	PERSONNEL: JC - BT

WELL DIAMETER: 1" 2" 4"	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

	GROUNDWATER SAMPLING
	START:
	FINISH:
	VOLUME PURGED (gal):

IN SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
							Well Goes Dry While Purging ☐						

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: Grab

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
230007 2-02	3-6-23	0910	3	N	

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE:	3-6-23	JOB NUMBER:	204EM03198
PROJECT:	Garvey	EVENT:	1 of 4
WELL ID:	RW-3	LOCATION:	Hastings, NE

CONDITION OF WELL	BOLTS: ☐ GOOD ☐ REPLACE #____ ☐ N/A	BOLLARDS: ☐ GOOD ☐ REPAIR #____ ☐ N/A
LOCK: ☐ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☐ GOOD ☐ REPLACE	PAD: ☐ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS:	Cloudy	AMBIENT TEMP:	30's
REVIEWED BY:	JC	PERSONNEL:	JC - BT

WELL DIAMETER: 1" 2" 4"			ANALYSIS: VOC's		
TOTAL DEPTH from TOC (ft.):					
DEPTH TO NAPL from TOC (ft.):					
DEPTH TO WATER from TOC (ft.):					
					GROUNDWATER SAMPLING
					START:
					FINISH:
					VOLUME PURGED (gal):

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
							Well Goes Dry While Purging ☐						

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: Grab

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
23000772-03	3-6-23	0915	3	N	

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 3-6-23	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT:
WELL ID: RW-4	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☐ GOOD ☐ REPLACE #____ ☐ N/A	BOLLARDS: ☐ GOOD ☐ REPAIR #____ ☐ N/A
LOCK: ☐ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☐ GOOD ☐ REPLACE	PAD: ☐ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS: cloudy	AMBIENT TEMP: 30's
REVIEWED BY: JC	PERSONNEL: JC - BT

WELL DIAMETER: 1" 2" 4"	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

GROUNDWATER SAMPLING	
START:	
FINISH:	
VOLUME PURGED (gal):	

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
							Well Goes Dry While Purging ☐						

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: Grab

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
2300072-04	3-6-23	0920	3	N	

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 3-6-23	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT:
WELL ID: RW-5	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☐ GOOD ☐ REPLACE #___ ☐ N/A	BOLLARDS: ☐ GOOD ☐ REPAIR #___ ☐ N/A
LOCK: ☐ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☐ GOOD ☐ REPLACE	PAD: ☐ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 30's
REVIEWED BY: JC	PERSONNEL: JC BT

WELL DIAMETER: 1" 2" 4"	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

GROUNDWATER SAMPLING
START:
FINISH:
VOLUME PURGED (gal):

IN SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
								Well Goes Dry While Purging ☐					

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: Grab

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
2300072-05	3-6-23	0925	3	N	

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 3-6-23	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT: 1 of 4
WELL ID: RW-6	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☐ GOOD ☐ REPLACE #___ ☐ N/A		BOLLARDS: ☐ GOOD ☐ REPAIR #___ ☐ N/A
LOCK: ☐ GOOD ☐ REPLACE ☐ N/A		EXPANSION CAP: ☐ GOOD ☐ REPLACE	PAD: ☐ GOOD ☐ REPAIR (Comment)
WEATHER CONDITIONS: Cloudy		AMBIENT TEMP: 30's	
REVIEWED BY: JC		PERSONNEL: SC - BT	

WELL DIAMETER: 1" 2" 4"	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

	GROUNDWATER SAMPLING
	START:
	FINISH:
	VOLUME PURGED (gal):

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
							Well Goes Dry While Purging ☐						

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: Grab

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
230072-06	3-6-23	0930	3	N	

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 3-6-23	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT: 1 of 4
WELL ID: RW-7	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☐ GOOD ☐ REPLACE #___ ☐ N/A	BOLLARDS: ☐ GOOD ☐ REPAIR #___ ☐ N/A
LOCK: ☐ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☐ GOOD ☐ REPLACE	PAD: ☐ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 30s
REVIEWED BY: JC	PERSONNEL: JC - BT

WELL DIAMETER: 1" 2" 4"	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

GROUNDWATER SAMPLING
START:
FINISH:
VOLUME PURGED (gal):

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
							Well Goes Dry While Purging ☐						

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: Grab

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
230072-07	3-6-23	0935	3	N	

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 3-6-23	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT:
WELL ID: RW-8	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☐ GOOD ☐ REPLACE #____ ☐ N/A	BOLLARDS: ☐ GOOD ☐ REPAIR #____ ☐ N/A
LOCK: ☐ GOOD ☐ REPLACE ☐ N/A		EXPANSION CAP: ☐ GOOD ☐ REPLACE / PAD: ☐ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 30's
REVIEWED BY: JC	PERSONNEL: JC - BT

WELL DIAMETER: 1" 2" 4"	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

	GROUNDWATER SAMPLING
	START:
	FINISH:
	VOLUME PURGED (gal):

IN SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
							Well Goes Dry While Purging ☐						

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: Grab

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
23000072-08	3-6-23	0940	3		

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 3-6-23		JOB NUMBER: 204EM03198	
PROJECT: Garvey		EVENT:	
WELL ID: Influent		LOCATION: Hastings, NE	
CONDITION OF WELL	BOLTS: ☐ GOOD ☐ REPLACE #____ ☐ N/A	BOLLARDS: ☐ GOOD ☐ REPAIR #____ ☐ N/A	
LOCK: ☐ GOOD ☐ REPLACE ☐ N/A		EXPANSION CAP: ☐ GOOD ☐ REPLACE	PAD: ☐ GOOD ☐ REPAIR (Comment)
WEATHER CONDITIONS: Cloudy		AMBIENT TEMP: 30's	
REVIEWED BY: JC		PERSONNEL: JC - BT	

WELL DIAMETER: 1" 2" 4"			ANALYSIS: VOC's		
TOTAL DEPTH from TOC (ft.):					
DEPTH TO NAPL from TOC (ft.):					
DEPTH TO WATER from TOC (ft.):					
					GROUNDWATER SAMPLING
					START:
					FINISH:
					VOLUME PURGED (gal):

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
							Well Goes Dry While Purging ☐						

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: Grab

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
230072-09	3-6-23	0945	3	N	
230072-10	3-6-23	0945	3	N	Duplicate

COMMENTS:

Purge water placed in drum#_____

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 3-6-23	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT:
WELL ID: Effluent	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☐ GOOD ☐ REPLACE #___ ☐ N/A	BOLLARDS: ☐ GOOD ☐ REPAIR #___ ☐ N/A
LOCK: ☐ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☐ GOOD ☐ REPLACE	PAD: ☐ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 30s
REVIEWED BY: JC	PERSONNEL: JC - BT

WELL DIAMETER: 1" 2" 4"	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

	GROUNDWATER SAMPLING
	START:
	FINISH:
	VOLUME PURGED (gal):

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
								Well Goes Dry While Purging ☐					

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: Grab

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
2300042-11	3-6-23	0950	3	N	

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 03/08/2023	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT: 1 of 4
WELL ID: MW-3B	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☑ GOOD ☐ REPLACE #____ ☐ N/A	BOLLARDS: ☑ GOOD ☐ REPAIR #____ ☐ N/A
LOCK: ☑ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☑ GOOD ☐ REPLACE	PAD: ☑ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 37
REVIEWED BY:	PERSONNEL: JC CC

WELL DIAMETER: 1" 2" (4")	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

GROUNDWATER SAMPLING	
START:	08:19
FINISH:	08:19
VOLUME PURGED (gal):	

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
							Well Goes Dry While Purging ☐						

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: PDB

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
2300072-19	03/08/23	08:19	3	N	

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE:	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT:
WELL ID: MW-4A	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☐ GOOD ☐ REPLACE #____ ☐ N/A	BOLLARDS: ☐ GOOD ☐ REPAIR #____ ☐ N/A
LOCK: ☐ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☐ GOOD ☐ REPLACE	PAD: ☐ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS:	AMBIENT TEMP:
REVIEWED BY:	PERSONNEL:

WELL DIAMETER: 1" 2" 4"	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

GROUNDWATER SAMPLING	
START:	
FINISH:	
VOLUME PURGED (gal):	

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
							Well Goes Dry While Purging ☐						

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: PDB

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks

COMMENTS: No Sample (No water)

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 03/09/2023	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT: 1 of 4
WELL ID: MW-4B	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☑ GOOD ☐ REPLACE #____ ☐ N/A	BOLLARDS: ☑ GOOD ☐ REPAIR #____ ☐ N/A
LOCK: ☑ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☑ GOOD ☐ REPLACE	PAD: ☑ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 37
REVIEWED BY:	PERSONNEL: CC JC

WELL DIAMETER: 1" (2") 4"	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

GROUNDWATER SAMPLING
START: 0852
FINISH: 0852
VOLUME PURGED (gal):

IN SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
							Well Goes Dry While Purging ☐						

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: PDB

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
230007 2-23	03/09/23	0852	3	N	
230007 2-24	03/09/23	0852	3	N	Duplicate

COMMENTS:

Purge water placed in drum#_____ Page __ of __

CleanPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 03/09/2023	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT: 1 of 4
WELL ID: MW-5A	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☑ GOOD ☐ REPLACE #____ ☐ N/A	BOLLARDS: ☑ GOOD ☐ REPAIR #____ ☐ N/A
LOCK: ☑ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☑ GOOD ☐ REPLACE	PAD: ☑ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 37
REVIEWED BY:	PERSONNEL: CC JC

WELL DIAMETER: 1" (2") 4"	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

GROUNDWATER SAMPLING	
START:	0913
FINISH:	0913
VOLUME PURGED (gal):	

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
							Well Goes Dry While Purging ☐						

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: PDB

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
230009T2-25	03/09/23	0913	3	N	

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 03/08/2023	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT: 1 of 4
WELL ID: MW-5B	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☑ GOOD ☐ REPLACE #___ ☐ N/A		BOLLARDS: ☑ GOOD ☐ REPAIR #___ ☐ N/A
LOCK: ☑ GOOD ☐ REPLACE ☐ N/A		EXPANSION CAP: ☑ GOOD ☐ REPLACE	PAD: ☑ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 37
REVIEWED BY:	PERSONNEL: CC JC

WELL DIAMETER: 1" ~~(2")~~ CC (4")	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

GROUNDWATER SAMPLING	
START:	0922
FINISH:	0922
VOLUME PURGED (gal):	

~~IN-SITU TESTING~~

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):												
Temperature (C°):												(3%)
pH (units):												(1 pH Unit)
ORP (mV):												
Corrected ORP** (mV):												(+/- 10 mV)
Turbidity (NTU):												
DO* (mg/L):												(10%)
Volume Purged (gal):												
Depth to Water (ft):												(<0.3 Feet)
Color:												
Odor:												

Well Goes Dry While Purging ☐

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data ☐ Bailer ☐ Pump Description: PDB

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
2300072-26	03/08/23	0922	~~3~~ 3	N	MS/MSD
~~2300072-27~~	~~03/08/23~~		~~3~~	~~N~~	~~MS/MSD~~ JC 3/8

COMMENTS:

Purge water placed in drum#______________

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ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 03/09/2023	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT: 1 of 4
WELL ID: MW-6A	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☑ GOOD ☐ REPLACE #____ ☐ N/A	BOLLARDS: ☑ GOOD ☐ REPAIR #____ ☐ N/A
LOCK: ☑ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☑ GOOD ☐ REPLACE	PAD: ☑ GOOD ☐ REPAIR (Comment)
WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 37	
REVIEWED BY:	PERSONNEL: JC CC	

WELL DIAMETER: 1" (2") 4"	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

GROUNDWATER SAMPLING	
START:	08:09
FINISH:	08:09
VOLUME PURGED (gal):	

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
								Well Goes Dry While Purging ☐					

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: PDB

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
230072-19	03/09/23	08:09	3	N	

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 3-7-23	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT: 1 of 4
WELL ID: MW-19A	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☐ GOOD ☐ REPLACE # ___ ☑ N/A	BOLLARDS: ☑ GOOD ☐ REPAIR # ___ ☐ N/A	
LOCK: ☑ GOOD ☐ REPLACE ☐ N/A		EXPANSION CAP: ☐ GOOD ☐ REPLACE	PAD: ☑ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS: cloudy, windy	AMBIENT TEMP: 32
REVIEWED BY: JC	PERSONNEL: JC - BT

WELL DIAMETER: 1" 2" (4")	
TOTAL DEPTH from TOC (ft.): N/A	ANALYSIS: VOC's
DEPTH TO NAPL from TOC (ft.): N/A	
DEPTH TO WATER from TOC (ft.): N/A	

GROUNDWATER SAMPLING	
START:	1620
FINISH:	1620
VOLUME PURGED (gal):	

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: Bladder

Time (ham):	1555	1600	1605	1610	1615								
Temperature (C°):	8.64	9.58	10.04	10.16	10.24								(3%)
pH (units):	~~7.87~~	7.29	7.33	7.33	7.37								(1 pH Unit)
ORP (mV):	-5.9	-3.1	-0.7	1.1	2.4								
Corrected ORP** (mV):	194.1	196.9	199.3	201.1	202.4								(+/- 10 mV)
Turbidity (NTU):	0.93	0.46	0.07	0.02	0.02								
DO* (mg/L):	7.02	6.66	5.22	4.83	4.81								(10%)
Flow Volume Purged (gal): mL/min	250	250	250	250	250								
Depth to Water (ft):													(<0.3 Feet)
Color:	clr	clr	clr	clr	clr								
Cond. mS/cm:	0.848	0.881	0.896	0.901	0.901								
							Well Goes Dry While Purging ☐						

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☑ Pump Description: Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
2300072-15	3-7-23	1620	3	N	

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 3-7-23	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT: 1 of 4
WELL ID: MW-20A	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☐ GOOD ☐ REPLACE #___ ☑ N/A	BOLLARDS: ☑ GOOD ☐ REPAIR #___ ☐ N/A
LOCK: ☑ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☐ GOOD ☐ REPLACE	PAD: ☑ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 32
REVIEWED BY: JC	PERSONNEL: JC - BJ

WELL DIAMETER: 1" 2" (4")	
TOTAL DEPTH from TOC (ft.): N/A	ANALYSIS: VOC's
DEPTH TO NAPL from TOC (ft.): N/A	
DEPTH TO WATER from TOC (ft.): N/A	

GROUNDWATER SAMPLING	
START:	1530
FINISH:	1530
VOLUME PURGED (gal):	

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: Bladder

Time (ham):	1500	1505	1510	1515	1520	1525						
Temperature (C°):	8.23	8.04	9.92	9.42	8.74	8.90						(3%)
pH (units):	6.39	6.34	6.72	6.91	6.79	6.88						(1 pH Unit)
ORP (mV):	-5.3	-3.3	-5.1	-16.0	-21.8	-23.9						
Corrected ORP** (mV):	194.7	196.7	194.9	184.0	178.2							(+/- 10 mV)
Turbidity (NTU):	3.53	2.78	2.75	1.23	0.71	0.32						
DO* (mg/L):	0.67	0.72	0.33	0.29	0.29	0.29						(10%)
Volume Purged (gal): ml/min	250	250	250	250	250	250						
Depth to Water (ft):												(<0.3 Feet)
Color:	clr	clr	clr	clr	clr	clr						
Cond. mS/cm:	0.818	0.815	0.800	0.850	0.842	0.841						
							Well Goes Dry While Purging ☐					

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☑ Pump Description: Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
2300072-14	3-7-23	1530	3	N	

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE:	3-7-23	JOB NUMBER:	204EM03198
PROJECT:	Garvey	EVENT:	1 of 4
WELL ID:	MW-30A	LOCATION:	Hastings, NE

CONDITION OF WELL	BOLTS: ☐ GOOD ☐ REPLACE # ☐ ☑ N/A	BOLLARDS: ☑ GOOD ☐ REPAIR # ☐ ☐ N/A
LOCK: ☑ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☐ GOOD ☐ REPLACE	PAD: ☑ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS:	cloudy, windy	AMBIENT TEMP:	32
REVIEWED BY:	JC	PERSONNEL:	JC BT

WELL DIAMETER: 1" 2" (4")	
TOTAL DEPTH from TOC (ft.):	N/A
DEPTH TO NAPL from TOC (ft.):	N/A
DEPTH TO WATER from TOC (ft.):	N/A

ANALYSIS: VOC's

GROUNDWATER SAMPLING	
START:	1250
FINISH:	1250
VOLUME PURGED (gal):	

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: Bladder

Time (ham):	1220	1225	1230	1235	1240	1245							
Temperature (C°):	9.01	9.55	9.68	9.80	9.86	9.87							(3%)
pH (units):	6.89	7.19	7.31	7.32	7.36	7.18							(1 pH Unit)
ORP (mV):	-1.0	2.3	4.6	8.0	10.3	12.4							
Corrected ORP** (mV):	~~199.8~~	202.3	204.6	208.0	210.3	212.4							(+/- 10 mV)
Turbidity (NTU):	2.03	0.85	0.54	0.05	0.02	0.02							
DO* (mg/L):	11.54	11.09	11.31	12.58	12.37	12.16							(10%)
Volume Purged (gal): ml/min	200	200	200	200	200	200							
Depth to Water (ft):													(<0.3 Feet)
Color:	clr	clr	clr	clr	clr	clr							
Cond. mS/cm:	0.756	0.776	0.782	0.786	0.787	0.789							
							Well Goes Dry While Purging ☐						

flow

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☑ Pump Description: Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
2300072-13	3-7-23	1250	3	N	

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 3-7-23	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT: 1 of 4
WELL ID: MW-31A	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☑ GOOD ☐ REPLACE #___ ☑ N/A		BOLLARDS: ☑ GOOD ☐ REPAIR #___ ☐ N/A
LOCK: ☑ GOOD ☐ REPLACE ☐ N/A		EXPANSION CAP: ☐ GOOD ☐ REPLACE N/A	PAD: ☑ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 32
REVIEWED BY: JC	PERSONNEL: JC - BT

WELL DIAMETER: 1" 2" (4")	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.): N/A	
DEPTH TO NAPL from TOC (ft.): N/A	
DEPTH TO WATER from TOC (ft.): N/A	

GROUNDWATER SAMPLING	
START:	~~420~~ 1205
FINISH:	1205
VOLUME PURGED (gal):	

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: Bladder

Time (ham):	~~1125~~	~~1130~~	1135	1140	1145	1150	1155	1200				
Temperature (C°):	~~7.74~~	~~6.77~~	7.26	7.62	7.97	8.12	8.08	8.06				(3%)
pH (units):	~~7.56~~	~~7.78~~	7.18	7.11	7.34	7.36	7.15	7.04				(1 pH Unit)
ORP (mV):	~~-65.2~~	~~-80.7~~	-31.5	-24.6	-23.8	-25.5	-30.5	-31.9				
Corrected ORP** (mV):			168.5	175.4	176.2	174.5	169.5	168.1				(+/- 10 mV)
Turbidity (NTU):				1.51	1.17	0.86	0.73	0.03				
DO* (mg/L):	~~0.78~~	~~0.74~~	12.27	1.58	1.21	1.04	0.99	1.00				(10%)
Flow ~~Volume Purged (gal)~~: ml/min			200	200	200	200	200	200				
Depth to Water (ft):												(<0.3 Feet)
Color:			clr	clr	clr	clr	clr	clr				
Cond. mS/cm:	~~0.957~~	~~0.946~~	0.511	0.975	0.985	0.981	0.966	0.947				
	V.at	V.at					Well Goes Dry While Purging ☐					

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
2300072-12	3-7-23	12:05pm	3	N	

COMMENTS: Flow = 200 ml/min

Purge water placed in drum#__________

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ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 03/09/2023	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT: 1 of 4
WELL ID: MW-47B	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☑ GOOD ☐ REPLACE #____ ☐ N/A	BOLLARDS: ☑ GOOD ☐ REPAIR #____ ☐ N/A
LOCK: ☑ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☑ GOOD ☐ REPLACE	PAD: ☑ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 37
REVIEWED BY:	PERSONNEL: CC JC

WELL DIAMETER: 1" (2") 4"	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

GROUNDWATER SAMPLING	
START:	0934
FINISH:	0934
VOLUME PURGED (gal):	

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
							Well Goes Dry While Purging ☐						

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: PDB

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
230009 72-21	03/09/23	0934	3	N	

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 03/09/2023	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT: 1 of 4
WELL ID: MW-48B	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☑ GOOD ☐ REPLACE #____ ☐ N/A	BOLLARDS: ☑ GOOD ☐ REPAIR #____ ☐ N/A
LOCK: ☑ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☑ GOOD ☐ REPLACE	PAD: ☑ GOOD ☐ REPAIR (Comment)
WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 37	
REVIEWED BY:	PERSONNEL: Cody Crater / Jeremiah Cousins	

WELL DIAMETER: 1" (2") 4"					ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):					
DEPTH TO NAPL from TOC (ft.):					
DEPTH TO WATER from TOC (ft.):					
					GROUNDWATER SAMPLING
					START: 0745
					FINISH: 0745
					VOLUME PURGED (gal):

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
							Well Goes Dry While Purging ☐						

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: PDB

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
230072-16	03/09/2023	0745	3	N	
230072-16	03/09/2023	0745 CC		N CC	
230072-16	03/09/2023	0745 03/09/23		N	

COMMENTS:

Purge water placed in drum#_____

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 03/09/2023	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT: 1 of 4
WELL ID: MW-49B	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☑ GOOD ☐ REPLACE #____ ☐ N/A	BOLLARDS: ☑ GOOD ☐ REPAIR #____ ☐ N/A
LOCK: ☑ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☐ GOOD ☐ REPLACE	PAD: ☑ GOOD ☐ REPAIR (Comment)
WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 37	
REVIEWED BY:	PERSONNEL: CC SC	

WELL DIAMETER: 1" 2" 4"	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

GROUNDWATER SAMPLING	
START:	0825
FINISH:	0825
VOLUME PURGED (gal):	

IN SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
							Well Goes Dry While Purging ☐						

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: PDB

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
230072-20	03/08/23	0825	3	N	

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 03/09/2023	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT: 1 of 4
WELL ID: MW-50B	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☑ GOOD ☐ REPLACE #____ ☐ N/A	BOLLARDS: ☑ GOOD ☐ REPAIR #____ ☐ N/A
LOCK: ☑ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☑ GOOD ☐ REPLACE	PAD: ☑ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 37
REVIEWED BY:	PERSONNEL: CC JC

WELL DIAMETER: 1" (2") 4"	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

GROUNDWATER SAMPLING	
START:	0843
FINISH:	0843
VOLUME PURGED (gal):	

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
								Well Goes Dry While Purging ☐					

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: PDB

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
230072-22	03/08/23	0843	3	N	

COMMENTS:

Purge water placed in drum#_____ Page __ of __

ClearPath CONSULTANTS

GROUNDWATER SAMPLING FORM

DATE: 03/08/2023	JOB NUMBER: 204EM03198
PROJECT: Garvey	EVENT: 1 of 4
WELL ID: MW-51B	LOCATION: Hastings, NE

CONDITION OF WELL	BOLTS: ☑ GOOD ☐ REPLACE #____ ☐ N/A	BOLLARDS: ☑ GOOD ☐ REPAIR #____ ☐ N/A
LOCK: ☑ GOOD ☐ REPLACE ☐ N/A	EXPANSION CAP: ☑ GOOD ☐ REPLACE	PAD: ☑ GOOD ☐ REPAIR (Comment)

WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 37
REVIEWED BY:	PERSONNEL: CC JC

WELL DIAMETER: 1" (2") 4"	ANALYSIS: VOC's
TOTAL DEPTH from TOC (ft.):	
DEPTH TO NAPL from TOC (ft.):	
DEPTH TO WATER from TOC (ft.):	

GROUNDWATER SAMPLING	
START:	07:57
FINISH:	07:57
VOLUME PURGED (gal):	

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☐ Pump Description: Bladder

Time (ham):													
Temperature (C°):													(3%)
pH (units):													(1 pH Unit)
ORP (mV):													
Corrected ORP** (mV):													(+/- 10 mV)
Turbidity (NTU):													
DO* (mg/L):													(10%)
Volume Purged (gal):													
Depth to Water (ft):													(<0.3 Feet)
Color:													
Odor:													
								Well Goes Dry While Purging ☐					

*DO Range = 0 to 14.6 mg/L, max of 8.6 mg/L at 25°C **Corrected ORP = Field ORP + 200 mV

Sample Data

☐ Bailer ☐ Pump Description: PDB

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (to lab)	Filtered (Y/N) (0.45 mm)	Remarks
2300072-17	03/08/23	07:57	3	N	

COMMENTS:

Purge water placed in drum#_____ Page __ of __

MUILI PARAMETER METER INSPECTION / CALIBRATION FORM

Site USEPA MEW Make YSI Model 556 MPS Serial # _____

Source ✓ Stockroom ___ Field Environmental __ Environmental Instruments __ Pine

			Others:
Clean / good shape?	✓ Yes	No	
Batteries in good shape?	✓ Yes	No	
Generally Functioning Properly?	✓ Yes	No	
Sensors in good shape?	✓ Yes	No	

Dissolved Oxygen Calibration and Check

Elevation of Site _____ Ft Source: .

Barometric Pressure _____ Inches of Hg X 25.4 = _____ mm of Hg

Barometric Pressure Source _____

Corrected Barometric Pressure (if required for meter): (Station's BP in mmHg)–[2.5 * (Site Elevation in ft. /100)]

_____mm/Hg = _____ - [2.5 * (_____/100)]

Date &Time	Temp ℃	Calc. DO mg/l (Table below)	Meter Reading	If Δ> 0.3 mg/l recalibrate

Additional Dissolved Oxygen Calibration and Check

Barometric Pressure _____ Inches of Hg X 25.4 = _____ mm of Hg

Corrected Barometric Pressure (if required for meter): (Station's BP in mmHg)–[2.5 * (Site Elevation in ft. /100)]

_____mm/Hg = _____ - [2.5 * (_____/100)]

Date Time	Temp C	Calc. DO mg/l (Table below)	Meter Reading	If Δ> 0.3 mg/l recalibrate

DO in Mg/l at Given Temps

C	Mg/l	℃	Mg/l	℃	Mg/l	℃	Mg/l	℃	Mg/l	℃	Mg/l	℃	Mg/l
0	14.621	7	12.139	14	10.306	21	8.915	28	7.827	35	6.950		
1	14.216	8	11.843	15	10.084	22	8.743	29	7.691	36	6.837		
2	13.829	9	11.559	16	9.870	23	8.578	30	7.559	37	6.727		
3	13.460	10	11.288	17	9.665	24	8.418	31	7.430	38	6.620		
4	13.107	11	11.027	18	9.467	25	8.263	32	7.305	39	6.515		
5	12.770	12	10.777	19	9.276	26	8.113	33	7.183				
6	12.447	13	10.537	20	9.092	27	7.968	34	7.065				

ORP Ag/AgCl Volts = 0.231 + 0.0013 (25 - C°) Note: Most meter read in millivolts mv=Volts x1000

Time Probe Submerged =

Sensor	Time: Open Air	Standard (s) Value	Source & Lot	Time: 1100 Pre Calibration	Time: 1112 Post Calibration	Pass Calibration (Y/N)
pH	Su	7, 10, 4		3.97 Su	4.0 Su	yes
ORP	mV	---		mV	mV	---
Spec.Cond	mS/cm	1.407		0.917 mS/cm	1.407 mS/cm	yes
DO	Mg/L	---		Mg/L	Mg/L	---
TDS	g/L	---		g/L	g/L	---
Turbidity	NTU	1000		770.7 NTU	— NTU	N
Temp.	°C	---		°C	°C	---

Additional Checks

Signature [signature] Print Brad Trafford Date 3-7-23

Field Instruments Used
Garvey Elevator Federal Superfund Site
Hastings Nebraska

Instrument	Type	Make	Model #	Serial #
Multi Paramerter Meter	YSI	YSI	556 mps	11J102242
Turbidity Meter	HF Scientific	MicroTPW	2,000	200603034
Controller	Solinst Pump Control Unit	Solinst	466	250 ECU5627
IF Probe	Solinst Interface meter	Solinst	122	56578

Date:	3/6/23 to 3/8/23

Attachment 1b:
EPA eField Sheets and Chain of Custody Forms for WOs 2300072 & 2300073

SampleID	SampleName	SampleAlias	Matrix	SampledBegin	SampledEnd	SampledBy	BegDepth	EndDepth	DepthUnits	Latitude	Longitude	SampleComments	Gradient
2300072-01	Water sample	RW-1	Water	3/6/2023 8:55	3/6/2023 8:55	Jeremiah Cousins						Triple Volume MS/MSD	
2300072-02	Water sample	RW-2	Water	3/6/2023 9:10	3/6/2023 9:10	Jeremiah Cousins							
2300072-03	Water sample	RW-3	Water	3/6/2023 9:15	3/6/2023 9:15	Jeremiah Cousins							
2300072-04	Water sample	RW-4	Water	3/6/2023 9:20	3/6/2023 9:20	Jeremiah Cousins							
2300072-05	Water sample	RW-5	Water	3/6/2023 9:25	3/6/2023 9:25	Jeremiah Cousins							
2300072-06	Water sample	RW-6	Water	3/6/2023 9:30	3/6/2023 9:30	Jeremiah Cousins							
2300072-07	Water sample	RW-7	Water	3/6/2023 9:35	3/6/2023 9:35	Jeremiah Cousins							
2300072-08	Water sample	RW-8	Water	3/6/2023 9:40	3/6/2023 9:40	Jeremiah Cousins							
2300072-09	Water sample	Influent	Water	3/6/2023 9:45	3/6/2023 9:45	Jeremiah Cousins							
2300072-10	Water sample	Dup (Influent)	Water	3/6/2023 9:45	3/6/2023 9:45	Jeremiah Cousins						Field Duplicate-1	
2300072-11	Water sample	Effluent	Water	3/6/2023 9:50	3/6/2023 9:50	Jeremiah Cousins							
2300072-12	Water sample	MW-31A	Water	3/7/2023 12:05	3/7/2023 12:05	Jeremiah Cousins							
2300072-13	Water sample	MW-30A	Water	3/7/2023 12:50	3/7/2023 12:50	Jeremiah Cousins							
2300072-14	Water sample	MW-20A	Water	3/7/2023 15:30	3/7/2023 15:30	Jeremiah Cousins							
2300072-15	Water sample	MW-19A	Water	3/7/2023 16:20	3/7/2023 16:20	Jeremiah Cousins							
2300072-16	Water sample	MW-48B	Water	3/8/2023 7:45	3/8/2023 7:45	Jeremiah Cousins							
2300072-17	Water sample	MW-51B	Water	3/8/2023 7:57	3/8/2023 7:57	Jeremiah Cousins							
2300072-18	Water sample	MW-6A	Water	3/8/2023 8:09	3/8/2023 8:09	Jeremiah Cousins							
2300072-19	Water sample	MW-3B	Water	3/8/2023 8:19	3/8/2023 8:19	Jeremiah Cousins							
2300072-20	Water sample	MW-49B	Water	3/8/2023 8:25	3/8/2023 8:25	Jeremiah Cousins							
2300072-21	Water sample	MW-47B	Water	3/8/2023 8:34	3/8/2023 8:34	Jeremiah Cousins							
2300072-22	Water sample	MW-50B	Water	3/8/2023 8:43	3/8/2023 8:43	Jeremiah Cousins							
2300072-23	Water sample	MW-4B	Water	3/8/2023 8:52	3/8/2023 8:52	Jeremiah Cousins							
2300072-24	Water sample	Dup (MW-4B)	Water	3/8/2023 8:52	3/8/2023 8:52	Jeremiah Cousins							
2300072-25	Water sample	MW-5A	Water	3/8/2023 9:13	3/8/2023 9:13	Jeremiah Cousins							
2300072-26	Water sample	MW-5B	Water	3/8/2023 9:22	3/8/2023 9:22	Jeremiah Cousins						Triple Volume MS/MSD	
2300072-27	Water sample	Trip Blank	Water	3/1/2023 8:30	3/8/2023 10:06	Jeremiah Cousins						Trip Blank	
2300072-28	Water sample	Equipment Bla	Water	3/8/2023 10:33	3/8/2023 10:33	Jeremiah Cousins						Equipment Blank	
2300072-29	Water sample		Water									No Sample Collected	
2300072-30	Water sample		Water									No Sample Collected	
2300072-31	Water sample		Water									No Sample Collected	

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

EPA PROJECT MANAGER (Print)	SITE OR SAMPLING EVENT	DATE OF SAMPLE COLLECTION(S)	COC PAGE
Angela Puls	Garvey Elevator - 1st Quarter	3 (MONTH) 6 - 8 (DAY) 2023 (YEAR)	1 of 2

CONTENTS OF SHIPMENT

WORK ORDER (WO) AND SAMPLE NUMBER (e.g. 2200058-01)	TYPE OF CONTAINERS: 1 L PLASTIC BOTTLE	CANISTER	BOTTLE	BOTTLE	VOA SET (3 VIALS EA)	SAMPLED MEDIA: WATER	SO LID	HAZ WASTE	AIR	OTHER	RECEIVING LABORATORY REMARKS OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBER(S) OF CONTAINERS PER SAMPLE NUMBER										
2300072-01					3	✓					Triple Volume, MS/MSD
2300072-02					1	✓					
2300072-03					1	✓					
2300072-04					1	✓					
2300072-05					1	✓					
2300072-06					1	✓					
2300072-07					1	✓					
2300072-08					1	✓					
2300072-09					1	✓					
2300072-10					1	✓					Field Duplicate-1
2300072-11					1	✓					
2300072-12					1	✓					
2300072-13					1	✓					
2300072-14					1	✓					
2300072-15					1	✓					
2300072-16					1	✓					
2300072-17					1	✓					
2300072-18					1	✓					
2300072-19					1	✓					
2300072-20					1	✓					
2300072-21					1	✓					
2300072-22					1	✓					
2300072-23					1	✓					
2300072-24					1	✓					Field Duplicate-2

DESCRIPTION OF SHIPMENT

32 CONTAINER(S) CONSISTING OF _____ CRATE(S)

1 ICE CHEST(S): OTHER w/WO 2300073 nr3/9/23

MODE OF SHIPMENT

☐ COMMERCIAL CARRIER _____

☑ SAMPLER CONVEYED _____ (SHIPPING AIRBILL NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
Cody Crater SEALED ○ UNSEALED ○	NICOLE ROBLEZ Digitally signed by NICOLE ROBLEZ Date: 2023.03.09 10:21:00 -08'00' SEALED ○ UNSEALED ○	STC Analyses
RELINQUISHED BY (PM/SAMPLER) SEALED ○ UNSEALED ○	RECEIVED BY SEALED ○ UNSEALED ○	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY (PM/SAMPLER) SEALED ○ UNSEALED ○	RECEIVED BY SEALED ○ UNSEALED ○	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY (PM/SAMPLER) SEALED ○ UNSEALED ○	RECEIVED BY SEALED ○ UNSEALED ○	REASON FOR CHANGE OF CUSTODY

7-EPA-9282 (REV 4/17)

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

EPA PROJECT MANAGER (Print)	SITE OR SAMPLING EVENT	DATE OF SAMPLE COLLECTION(S)	COC PAGE
Angela Puls	Garvey Elevator - 1st Quarter	3 (MONTH) 6 - 8 (DAY) 2023 (YEAR)	2 of 2

CONTENTS OF SHIPMENT

WORK ORDER (WO) AND SAMPLE NUMBER (e.g. 2200058-01)	TYPE OF CONTAINERS: 1 L PLASTIC BOTTLE	CANISTER	BOTTLE	BOTTLE	VOA SET (3 VIALS EA)	SAMPLED MEDIA: WATER	SOLID	NAPL/WASTE	AIR	OTHER	RECEIVING LABORATORY REMARKS OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBER(S) OF CONTAINERS PER SAMPLE NUMBER										
2300072-25					1	✓					
2300072-26					3	✓					Triple Volume, MS/MSD
2300072-27					1	✓					Trip Blank
2300072-28					1	✓					Equipment Blank
WO Complete											
											Cooler hand-delivered to the STC with a
											temp of 1-2degC. nr3/9/2023

DESCRIPTION OF SHIPMENT

32 CONTAINER(S) CONSISTING OF _____ CRATE(S)

1 ICE CHEST(S): OTHER w/WO 2300073 nr3/9/23

MODE OF SHIPMENT

☐ COMMERCIAL CARRIER _____

☑ SAMPLER CONVEYED _____ (SHIPPING AIRBILL NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
Cody Crater [redacted]	NICOLE ROBLEZ Digitally signed by NICOLE ROBLEZ Date: 2023.03.09 10:22:00 -08'00'	STC Analyses
◉ SEALED ○ UNSEALED	◉ SEALED ○ UNSEALED	
RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
○ SEALED ○ UNSEALED	○ SEALED ○ UNSEALED	
RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
○ SEALED ○ UNSEALED	○ SEALED ○ UNSEALED	
RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
○ SEALED ○ UNSEALED	○ SEALED ○ UNSEALED	

7-EPA-6282 (REV 4/17)

SampleID	SampleName	SampleAlias	Matrix	SampledBegin	SampledEnd	SampledBy	BegDepth	EndDepth	DepthUnits	Latitude	Longitude	SampleComments
2300073-01	Air canister	SVE-3	Air	3/7/2023 8:28	3/7/2023 8:28	Jeremiah Cousins						
2300073-02	Air canister	SVE-4	Air	3/7/2023 8:31	3/7/2023 8:31	Jeremiah Cousins						
2300073-03	Air canister	SVE-7R	Air	3/7/2023 8:36	3/7/2023 8:36	Jeremiah Cousins						
2300073-04	Air canister	SVE-8	Air	3/7/2023 8:38	3/7/2023 8:38	Jeremiah Cousins						
2300073-05	Air canister	SVE-9	Air	3/7/2023 8:41	3/7/2023 8:41	Jeremiah Cousins						
2300073-06	Air canister	SVE-10	Air	3/7/2023 8:44	3/7/2023 8:44	Jeremiah Cousins						
2300073-07	Air canister	SVE-11	Air	3/7/2023 8:47	3/7/2023 8:47	Jeremiah Cousins						
2300073-08	Air canister	SVE-12	Air	3/7/2023 8:50	3/7/2023 8:50	Jeremiah Cousins						
2300073-09	Air canister	Effluent	Air	3/7/2023 9:00	3/7/2023 9:00	Jeremiah Cousins						
2300073-10	Air canister	Field Dup (Effl	Air	3/7/2023 9:00	3/7/2023 9:00	Jeremiah Cousins						Field Duplicate

SampleID	Canister ID	Regulator ID	Starting Pressure (In Hg)	Ending Pressure (In Hg)
2300073-01	697		27.5	1.5
2300073-02	857		27.5	2.5
2300073-03	810		27.5	1.5
2300073-04	895		27.5	1.5
2300073-05	930		27.5	0.5
2300073-06	918		27.5	0.5
2300073-07	601		27.5	3.5
2300073-08	602		27.5	4
2300073-09	896		27.5	4
2300073-10	707		26.5	2

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

EPA PROJECT MANAGER (Print)	SITE OR SAMPLING EVENT	DATE OF SAMPLE COLLECTION(S)	COC PAGE
Angela Puls	Garvey Elevator - 1st Quarter	3 (MONTH) 7 (DAY) 2023 (YEAR)	1 of 1

CONTENTS OF SHIPMENT

WORK ORDER (WO) AND SAMPLE NUMBER (e.g. 2200058-01)	TYPE OF CONTAINERS: 1 L PLASTIC BOTTLE	6L CANISTER	BOTTLE	BOTTLE	VOA SET (3 VIALS EA)	SAMPLED MEDIA: WATER	SOLID	HAZ WASTE	AIR	OTHER	RECEIVING LABORATORY REMARKS OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBER(S) OF CONTAINERS PER SAMPLE NUMBER										
2300073-01		1							✓		
2300073-02		1							✓		
2300073-03		1							✓		
2300073-04		1							✓		
2300073-05		1							✓		
2300073-06		1							✓		
2300073-07		1							✓		
2300073-08		1							✓		
2300073-09		1							✓		
2300073-10		1							✓		Field Duplicate
WO Complete											
											Air canisters hand-delivered to the STC at room temp.
											No temp. check needed on air canisters. nr3/9/23

DESCRIPTION OF SHIPMENT

10 CONTAINER(S) CONSISTING OF 2 CRATE(S)

_____ ICE CHEST(S): OTHER w/WO 2300072 nr3/9/23

MODE OF SHIPMENT

☐ COMMERCIAL CARRIER _____

☑ SAMPLER CONVEYED _____ (SHIPPING AIRBILL NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
Cody Crater [signature block]	NICOLE ROBLEZ Digitally signed by NICOLE ROBLEZ Date: 2023.03.09 10:23:25 -08'00'	STC Analyses
◉ SEALED ○ UNSEALED	◉ SEALED ○ UNSEALED	
RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
○ SEALED ○ UNSEALED	○ SEALED ○ UNSEALED	
RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
○ SEALED ○ UNSEALED	○ SEALED ○ UNSEALED	
RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
○ SEALED ○ UNSEALED	○ SEALED ○ UNSEALED	

7-EPA-6282 (REV 4/17)

Attachment 2a:
O&M Logs for LTRA Activities during January 2023

OPERATIONS AND MAINTENANCE REPORT FORM
GARVEY ELEVATOR SITE, LTRA Task Order

DATE: 1/4/23 TIME: 1030 - 1615

OPERATOR: SC/CB OPERATOR ON SITE: 5.75 Hours

WEATHER: Cold 30° ⊙m4m - .75

PPE: Hard Hat, Safty Vest, Steel toes Phase 2 - 5.00

DAILY CHECKLIST:

Vandalism/Damage to Site/Building Exterior: none

Vandalism/Damage to Process Area: none

Vandalism/Damage to Wells: none

Hours of Operation Since Last Oil Change: SVE 1: 98005.0

SVE 2: 8990.5

Hour of Operation Since Last Blower Lube: SVE 1: 98005.0

SVE 2: 8990.5

Hours of Downtime:

MAINTENANCE ACTIVITIES/OBSERVATIONS/COMMENTS:

SVE-1 98788.7 Hrs.; "H2O

SVE-2 9774.1 Hrs.; "H2O

Comments: SVE-1 & SVE-2 Currently off.

SYSTEM MEASUREMENTS (To be recorded weekly and with any sampling event)

SVE 1 (SHALLOW) PROCESS MEASUREMENTS:

System Vacuum:		IN. H2O	Flow:	NA	
Dilution Damper:	100% Open		Recycle Line:	0% Open	
Knockout Tank:	0 % Full		Temp:	NA °F	
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-4		-	SVE-5		-
SVE-8		-	SVE-6		-
SVE-1		-	SVE-2		-
SVE-7R		-	SVE-12		-
SVE-3		-	Reserved	-	-

SVE 2 (DEEP) PROCESS MEASUREMENTS:

System Vacuum:		IN. H2O	Flow:	NA	
Dilution Damper:	100% Open		Recycle Line:	0% Open	
Knockout Tank:	0 % Full		Temp:	NA °F	
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-11		-	Reserved	-	-
SVE-10 or SVE-13		-	Reserved	-	-
SVE-9		-	Reserved	-	-

COMBINED FLOW FOR SVE SYSTEM 1 & 2: _____ CFM

COMMENTS

_____

_____

_____

GROUNDWATER EXTRACTION AND TREATMENT (GET) SYSTEM MEASUREMENTS AT THE PLC SCREEN:

Location	Flow Rate Set Point (GPM)	Flow Rate (GPM)	VFD Speed (HZ)	Water Column (FT)
RW-1	2.9	2.9	59.2	2.6
RW-2	7.0	7.0	56.1	2.4
RW-3	3.8	3.8	46.4	3.7
RW-4	6.3	6.3	52.8	1.8
RW-5	2.4	2.4	56.8	1.9
RW-6	83	83	54.8	11.9
RW-7	56	56	52.3	3.2
RW-8	103	103	59.4	11.3
Total Flow Rate	-	264.6	-	-
	Stripper Tower Set Point (FT)	**Total Flow (GPM)**	**VFD Speed (HZ)**	**Stripper Tower Level (FT)**
Effluent Pump	6.0	137.6	59.9	6.0

Location	Reading		Location	Reading	
Influent Pressure	19.9	PSI	Effluent Pressure	21.0	PSI
Influent Pressure Δ	0.0	PSI	Effluent Pressure Δ	20.8	PSI
Injection Well 1 - Water Column	60.5	FT	Injection Well 2 - Water Colum	-11.4	FT
Blower Pressure	2.5	"H2O			

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM:

Location	Total Flow (gallons)	Location	Total Flow (gallons)
GET Water Room South Manifold, wells listed South to North		GET Water Room North Manifold, wells listed South to North	
RW-5	9938265	RW-7	1310418856
RW-8	2200820 48	RW-6	2036.29984
RW-3	7412222	RW-1	6999522
RW-4	14009912	RW-2	12776160

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM (Continued):

Total flow through stripper system: 264.4 gpm

Stripper tower magnehilic reading: 2.8 "H2O

BAG FILER PROCESS MEASUREMENTS:

Location	Reading	Location	Reading
Influent Filter Skid (west side)			
North Filter Housing			
Top Gauge	PSI: 22	Side Gauge	PSI: 18
Pressure Δ (Side PSI-Top PSI)			PSI: 4
South Filter Housing			
Top Gauge	PSI: 20	Side Gauge	PSI: 22
Pressure Δ (Side PSI-Top PSI)			PSI: 2
Effluent Filter Skid (east side)			
East Filter Housing			
Top Gauge	PSI: 30	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 30
West Filter Housing			
Top Gauge	PSI: 29	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 29

COMMENTS

Worked on RW-39 RW-6, Changed Influent & Effluent Bag Filters, and fixed Air unit for computer.

PH Effluent: 8.2

OPERATIONS AND MAINTENANCE REPORT FORM
GARVEY ELEVATOR SITE, LTRA Task Order

DATE: 1/9/23 TIME: 1000-1300

OPERATOR: JC OPERATOR ON SITE: 3.00 Hours

WEATHER: Sunny 41°

PPE: Hard Hat, Safty vest, Steel toes

1000-1215 - fixing computer & RW-6 RW-6 keeps tripping off at VFD

DAILY CHECKLIST:

Vandalism/Damage to Site/Building Exterior: None

Vandalism/Damage to Process Area: None

Vandalism/Damage to Wells: None

Hours of Operation Since Last Oil Change: SVE 1: 98005.0

SVE 2: 8990.5

Hour of Operation Since Last Blower Lube: SVE 1: 98005.0

SVE 2: 8990.5

Hours of Downtime:

MAINTENANCE ACTIVITIES/OBSERVATIONS/COMMENTS:

SVE-1 93788.7 Hrs.; "H2O

SVE-2 9774.1 Hrs.; "H2O

Comments Sve -1 & 2 Currently off

SYSTEM MEASUREMENTS (To be recorded weekly and with any sampling event)

SVE 1 (SHALLOW) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:	NA	
Dilution Damper:	100% Open		Recycle Line:	0% Open	
Knockout Tank:	0 % Full		Temp:	NA ^{o}F	
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-4		-	SVE-5		-
SVE-8		-	SVE-6		-
SVE-1		-	SVE-2		-
SVE-7R		-	SVE-12		-
SVE-3		-	Reserved	-	-

SVE 2 (DEEP) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:	NA	
Dilution Damper:	100% Open		Recycle Line:	0% Open	
Knockout Tank:	0 % Full		Temp:	NA ^{o}F	
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-11		-	Reserved	-	-
SVE-10 or SVE-13		-	Reserved	-	-
SVE-9		-	Reserved	-	-

COMBINED FLOW FOR SVE SYSTEM 1 & 2: Currently off EPA Request CFM

COMMENTS

SVE-1 & SVE-2 Currently off due to EPA Request.

GROUNDWATER EXTRACTION AND TREATMENT (GET) SYSTEM MEASUREMENTS AT THE PLC SCREEN:

Location	Flow Rate Set Point (GPM)	Flow Rate (GPM)	VFD Speed (HZ)	Water Column (FT)
RW-1	2.9	2.9	59.3	2.6
RW-2	7.0	7.0	56.3	2.4
RW-3	3.8	3.8	46.6	2.3
RW-4	6.3	6.3	52.8	1.7
RW-5	2.8	2.8	59.0	1.6
RW-6	80	80	54.7	11.8
RW-7	58	58	52.5	3.2
RW-8	103	102	60.0	11.6
Total Flow Rate	-	262.8	-	-
	Stripper Tower Set Point (FT)	**Total Flow (GPM)**	**VFD Speed (HZ)**	**Stripper Tower Level (FT)**
Effluent Pump	6.0	138.6	24.5	6.0

Location	Reading	Location	Reading
Influent Pressure	19.7 PSI	Effluent Pressure	0.6 PSI
Influent Pressure Δ	0.1 PSI	Effluent Pressure Δ	1.7 PSI
Injection Well 1 - Water Column	61.2 FT	Injection Well 2 - Water Colum	-11.6 FT
Blower Pressure	2.5 "H2O	*Injection Well 2 (No Transducer)	

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM:

Location	Total Flow (gallons)	Location	Total Flow (gallons)
GET Water Room South Manifold, wells listed South to North		GET Water Room North Manifold, wells listed South to North	
RW-5	99563 75	RW-7	131439552
RW-8	220793456	RW-6	203666846
RW-3	7739171	RW-1	7020115
RW-4	140537134	RW-2	12025950

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM (Continued):

Total flow through stripper system: 262.8 gpm

Stripper tower magnehilic reading: 1.8 "H2O

BAG FILER PROCESS MEASUREMENTS:

Location	Reading	Location	Reading
Influent Filter Skid (west side)			
North Filter Housing			
Top Gauge	PSI: 22	Side Gauge	PSI: 16
Pressure Δ (Side PSI-Top PSI)			PSI: 6
South Filter Housing			
Top Gauge	PSI: 20	Side Gauge	PSI: 22
Pressure Δ (Side PSI-Top PSI)			PSI: 2
Effluent Filter Skid (east side)			
East Filter Housing			
Top Gauge	PSI: 6	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 0
West Filter Housing			
Top Gauge	PSI: 0	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 0

COMMENTS

PH Effluent: 6.89 with YSI

Cal. YSI

PH-4.00 Reading - 4.04

OPERATIONS AND MAINTENANCE REPORT FORM
GARVEY ELEVATOR SITE, LTRA Task Order

DATE: 1/16/23

TIME: 930 – 1445

OPERATOR: JC

OPERATOR ON SITE: 5.25 Hours

WEATHER: Sunny 37°

.75 - OM+M

PPE: Hard Hat, Safty vest, Steel toes

4.5 - working on RW-6, Cleaning Hut and re organizing.

DAILY CHECKLIST:

Vandalism/Damage to Site/Building Exterior: none

Vandalism/Damage to Process Area: none

Vandalism/Damage to Wells: none

Hours of Operation Since Last Oil Change: SVE 1: 98005.0

SVE 2: 8990.5

Hour of Operation Since Last Blower Lube: SVE 1: 98005.0

SVE 2: 8990.5

Hours of Downtime:

MAINTENANCE ACTIVITIES/OBSERVATIONS/COMMENTS:

SVE-1 98788.7 Hrs.; "H2O

SVE-2 9774.1 Hrs.; "H2O

Comments SVE-142 Currently off

SYSTEM MEASUREMENTS (To be recorded weekly and with any sampling event)

SVE 1 (SHALLOW) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:	NA	
Dilution Damper:	100% Open		Recycle Line:	0% Open	
Knockout Tank:	0 % Full		Temp:	NA ^{o}F	
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-4		-	SVE-5		-
SVE-8		-	SVE-6		-
SVE-1		-	SVE-2		-
SVE-7R		-	SVE-12		-
SVE-3		-	Reserved	-	-

SVE 2 (DEEP) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:	NA	
Dilution Damper:	100% Open		Recycle Line:	0% Open	
Knockout Tank:	0 % Full		Temp:	NA ^{o}F	
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-11		-	Reserved	-	-
SVE-10 or SVE-13		-	Reserved	-	-
SVE-9		-	Reserved	-	-

COMBINED FLOW FOR SVE SYSTEM 1 & 2: Currently off EPA Request CFM

COMMENTS

SVE-1 & SVE-2 Currently off due to EPA Request.

GROUNDWATER EXTRACTION AND TREATMENT (GET) SYSTEM MEASUREMENTS AT THE PLC SCREEN:

Location	Flow Rate Set Point (GPM)	Flow Rate (GPM)	VFD Speed (HZ)	Water Column (FT)
RW-1	2.9	2.9	59.3	3.1
RW-2	7.0	7.0	56.2	2.3
RW-3	4.0	4.0	46.9	1.9
RW-4	6.7	6.7	53.5	0.6
RW-5	3.0	3.0	59.6	1.1
RW-6	68	0	0.0	19.4
RW-7	60	60	52.8	2.5
RW-8	100	100	59.9	11.6
Total Flow Rate	-	183.6	-	-
	Stripper Tower Set Point (FT)	**Total Flow (GPM)**	**VFD Speed (HZ)**	**Stripper Tower Level (FT)**
Effluent Pump	6.0	93.6	15.5	6.0

→ currently offline to VFD/Pump issues

Location	Reading		Location	Reading	
Influent Pressure	19.2	PSI	Effluent Pressure	-1.1	PSI
Influent Pressure Δ	0.4	PSI	Effluent Pressure Δ	1.5	PSI
Injection Well 1 - Water Column	60.2	FT	Injection Well 2 - Water Colum	-11.6	FT
Blower Pressure	2.5	"H2O	*Injection Well 2 (No Transducer)		

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM:

Location	Total Flow (gallons)	Location	Total Flow (gallons)
GET Water Room South Manifold, wells listed South to North		GET Water Room North Manifold, wells listed South to North	
RW-5	99860002	RW-7	1320376 48
RW-8	2218024 56	RW-6	2037078 72
RW-3	7775816	RW-1	7049310
RW-4	14118611	RW-2	12886537

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM (Continued):

Total flow through stripper system: 183.6 gpm

Stripper tower magnehilic reading: 1.4 "H2O

BAG FILER PROCESS MEASUREMENTS:

Location	Reading	Location	Reading
Influent Filter Skid (west side)			
North Filter Housing			
Top Gauge	PSI: 22	Side Gauge	PSI: 17
Pressure Δ (Side PSI-Top PSI)			PSI: 5
South Filter Housing			
Top Gauge	PSI: 20	Side Gauge	PSI: 21
Pressure Δ (Side PSI-Top PSI)			PSI: 1
Effluent Filter Skid (east side)			
East Filter Housing			
Top Gauge	PSI: 0	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 0
West Filter Housing			
Top Gauge	PSI: 0	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 0

COMMENTS

PH Effluent: 7.9

Krieger on Site looked into RW-6 Switched VFD of RW-6 to RW-7 and Confemed that it was not VFD. Krieger thinnes motor is not Working.

OPERATIONS AND MAINTENANCE REPORT FORM
GARVEY ELEVATOR SITE, LTRA Task Order

DATE: 1-25-23

TIME: ~~PE~~ 11:45 - Onm Start -

OPERATOR: Derek Dickinson

OPERATOR ON SITE: _____ Hours

WEATHER: 25° - wind

PPE: standard

- EPA - NOEE meet 10:30
- gave tour -
- O+M -
- (10:30 - 2:00 - total site time -)

DAILY CHECKLIST:

Vandalism/Damage to Site/Building Exterior: none

Vandalism/Damage to Process Area: none

Vandalism/Damage to Wells: none

Hours of Operation Since Last Oil Change: SVE 1: 98005.0

SVE 2: 8990.5

Hour of Operation Since Last Blower Lube: SVE 1: 98005.0

SVE 2: 8990.5

Hours of Downtime: -

MAINTENANCE ACTIVITIES/OBSERVATIONS/COMMENTS:

SVE-1 OFF Hrs.; "H2O

SVE-2 OFF Hrs.; "H2O

Comments Met on site : Angela Puls - EPA
Jim Borovich, May Al Qassabi, Payton Beckmann NOEE

- installed (1) new air intake filter
- Re-connected Inet by dis-connecting "power" and re-connecting (small black box/controller)
- Re-started RW-3 by clearing alarm and re-starting

SYSTEM MEASUREMENTS (To be recorded weekly and with any sampling event)

SVE 1 (SHALLOW) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:	NA	
Dilution Damper:	100% Open		Recycle Line:	0% Open	
Knockout Tank:	0 % Full		Temp:	NA °F	
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-4		-	SVE-5		-
SVE-8		-	SVE-6		-
SVE-1		-	SVE-2		-
SVE-7R		-	SVE-12		-
SVE-3		-	Reserved	-	-

SVE 2 (DEEP) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:	NA	
Dilution Damper:	100% Open		Recycle Line:	0% Open	
Knockout Tank:	0 % Full		Temp:	NA °F	
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-11		-	Reserved	-	-
SVE-10 or SVE-13		-	Reserved	-	-
SVE-9		-	Reserved	-	-

COMBINED FLOW FOR SVE SYSTEM 1 & 2: Currently off EPA Request CFM

COMMENTS

SVE-1 & SVE-2 Currently off due to EPA Request.

GROUNDWATER EXTRACTION AND TREATMENT (GET) SYSTEM MEASUREMENTS AT THE PLC SCREEN:

Location	Flow Rate Set Point (GPM)	Flow Rate (GPM)	VFD Speed (HZ)	Water Column (FT)
RW-1	2.9	2.9	59.4	2.4
RW-2	7.0	7.0	56.2	2.2
RW-3	4.1	4.1	47.0	3.1
RW-4	6.6	6.6	53.4	0.9
RW-5	2.8	2.8	59.6	1.3
RW-6	OFF			
RW-7	60	60	52.7	2.8
RW-8	100	100	59.8	11.4
Total Flow Rate	183.4	183.4	-	-
	Stripper Tower Set Point (FT)	**Total Flow (GPM)**	**VFD Speed (HZ)**	**Stripper Tower Level (FT)**
Effluent Pump	6.0	96.5	15.3	6.0

Rw-3 was off ← when I arrived. I turned on.

Location	Reading		Location	Reading	
Influent Pressure	19.2	PSI	Effluent Pressure	0.3	PSI
Influent Pressure Δ	-0.4	PSI	Effluent Pressure Δ	1.8	PSI
Injection Well 1 - Water Column	60.9	FT	Injection Well 2 - Water Colum	-11.6	FT
Blower Pressure	19.6	"H2O	*Injection Well 2 (No Transducer)		

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM:

Location	Total Flow (gallons)	Location	Total Flow (gallons)
GET Water Room South Manifold, wells listed South to North		GET Water Room North Manifold, wells listed South to North	
RW-5	2.8 / 10023029	RW-7	60.7 / 132820160
RW-8	100.1 / 223109088	RW-6	OFF Ø
RW-3	4.1 / 7812833	RW-1	2.9 / 7087199
RW-4	6.5 / 14203048	RW-2	7.0 / 12488138

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM (Continued):

Total flow through stripper system: 184.1 gpm

Stripper tower magnehilic reading: ≠2.5 "H2O

BAG FILER PROCESS MEASUREMENTS:

Location	Reading	Location	Reading
Influent Filter Skid (west side)			
North Filter Housing			
Top Gauge	PSI: 25	Side Gauge	PSI: 16.5
Pressure Δ (Side PSI-Top PSI)	~~50~~		PSI: 8.5
South Filter Housing			
Top Gauge	PSI: 20	Side Gauge	PSI: 22
Pressure Δ (Side PSI-Top PSI)			PSI: 2
Effluent Filter Skid (east side)			
East Filter Housing			
Top Gauge	PSI: Ø	Side Gauge	PSI: Ø
Pressure Δ (Side PSI-Top PSI)			PSI: —
West Filter Housing			
Top Gauge	PSI: Ø	Side Gauge	PSI: Ø
Pressure Δ (Side PSI-Top PSI)			PSI: —

COMMENTS

PH Effluent: 7.2

Blower Magnahelic (on floor) = 2.5

Attachment 2c:
O&M Logs for LTRA Activities during February 2023

OPERATIONS AND MAINTENANCE REPORT FORM
GARVEY ELEVATOR SITE, LTRA Task Order

DATE: 2-1-23 TIME: 1045 – 1245

OPERATOR: JC OPERATOR ON SITE: 2.00 Hours

WEATHER: Sunny 15° 1 hr - fixing RW-4

PPE: Hard Hat, Safty vest, Steel toes

DAILY CHECKLIST:

Vandalism/Damage to Site/Building Exterior: none

Vandalism/Damage to Process Area: none

Vandalism/Damage to Wells: none

Hours of Operation Since Last Oil Change: SVE 1: 98005.0

SVE 2: 8990.5

Hour of Operation Since Last Blower Lube: SVE 1: 98005.0

SVE 2: 8990.5

Hours of Downtime:

MAINTENANCE ACTIVITIES/OBSERVATIONS/COMMENTS:

SVE-1 98813.4 Hrs.; "H2O

SVE-2 09798.8 Hrs.; "H2O

Comments

SYSTEM MEASUREMENTS (To be recorded weekly and with any sampling event)

SVE 1 (SHALLOW) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:		NA
Dilution Damper:		100% Open	Recycle Line:		0% Open
Knockout Tank:		0 % Full	Temp:		NA ^{o}F
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-4		-	SVE-5		-
SVE-8		-	SVE-6		-
SVE-1		-	SVE-2		-
SVE-7R		-	SVE-12		-
SVE-3		-	Reserved	-	-

SVE 2 (DEEP) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:		NA
Dilution Damper:		100% Open	Recycle Line:		0% Open
Knockout Tank:		0 % Full	Temp:		NA ^{o}F
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-11		-	Reserved	-	-
SVE-10 or SVE-13		-	Reserved	-	-
SVE-9		-	Reserved	-	-

COMBINED FLOW FOR SVE SYSTEM 1 & 2: Currently off EPA Request CFM

COMMENTS

SVE-1 & SVE-2 Currently off due to EPA Request.

GROUNDWATER EXTRACTION AND TREATMENT (GET) SYSTEM MEASUREMENTS AT THE PLC SCREEN:

Location	Flow Rate Set Point (GPM)	Flow Rate (GPM)	VFD Speed (HZ)	Water Column (FT)
RW-1	2.9	2.9	59.3	2.3
RW-2	7.0	7.0	56.2	2.2
RW-3	4.1	4.1	47.1	1.9
RW-4	6.5	6.5	52.8	4.9
RW-5	2.8	2.8	59.9	1.4
RW-6	6.8	0	0.0	19.5
RW-7	62	62	52.9	2.6
RW-8	100	100	59.9	12.1
Total Flow Rate	-	185.3	-	-
	Stripper Tower Set Point (FT)	**Total Flow (GPM)**	**VFD Speed (HZ)**	**Stripper Tower Level (FT)**
Effluent Pump	6.0	97.6	16.0	6.0

not working

Location	Reading	Location	Reading
Influent Pressure	19.3 PSI	Effluent Pressure	0.3 PSI
Influent Pressure Δ	0.3 PSI	Effluent Pressure Δ	2.2 PSI
Injection Well 1 - Water Column	61.0 FT	Injection Well 2 - Water Colum	-11.6 FT
Blower Pressure	3.3 "H2O	*Injection Well 2 (No Transducer)	

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM:

Location	Total Flow (gallons)	Location	Total Flow (gallons)
GET Water Room South Manifold, wells listed South to North		GET Water Room North Manifold, wells listed South to North	
RW-5	10051024	RW-7	13343283Z
RW-8	224111824	RW-6	203407872
RW-3	7853985	RW-1	7116333
RW-4	14235012	RW-2	13258568

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM (Continued):

Total flow through stripper system: 185.3 gpm

Stripper tower magnehilic reading: 1.8 "H2O

BAG FILER PROCESS MEASUREMENTS:

Location	Reading	Location	Reading
Influent Filter Skid (west side)			
North Filter Housing			
Top Gauge	PSI: 24	Side Gauge	PSI: 17
Pressure Δ (Side PSI-Top PSI)			PSI: 9
South Filter Housing			
Top Gauge	PSI: 20	Side Gauge	PSI: 22
Pressure Δ (Side PSI-Top PSI)			PSI: 2
Effluent Filter Skid (east side)			
East Filter Housing			
Top Gauge	PSI: 0	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 0
West Filter Housing			
Top Gauge	PSI: 0	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 0

COMMENTS

PH Effluent: 6.9

OPERATIONS AND MAINTENANCE REPORT FORM
GARVEY ELEVATOR SITE, LTRA Task Order

DATE: 2/20/22 TIME: 900 - 1115

OPERATOR: JC OPERATOR ON SITE: 2.25 Hours

WEATHER: Sunny 37° 1.5 - Collecting water level on RW-4A working on RW-3, working on Sampling equipment drop off

PPE: Hard Hat, Safty vest, Steel toes

DAILY CHECKLIST:

Vandalism/Damage to Site/Building Exterior: none

Vandalism/Damage to Process Area: none

Vandalism/Damage to Wells: none

Hours of Operation Since Last Oil Change: SVE 1: 98005.0

SVE 2: 8990.5

Hour of Operation Since Last Blower Lube: SVE 1: 98005.0

SVE 2: 8990.5

Hours of Downtime:

MAINTENANCE ACTIVITIES/OBSERVATIONS/COMMENTS:

SVE-1 98813.4 Hrs.; "H2O

SVE-2 09798.8 Hrs.; "H2O

Comments ~~121.80~~ MW-4A - water - 121.80

~~122.05~~ total - 122.05

SYSTEM MEASUREMENTS (To be recorded weekly and with any sampling event)

SVE 1 (SHALLOW) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:	NA	
Dilution Damper:	100% Open		Recycle Line:	0% Open	
Knockout Tank:	0 % Full		Temp:	NA ^{o}F	
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-4		-	SVE-5		-
SVE-8		-	SVE-6		-
SVE-1		-	SVE-2		-
SVE-7R		-	SVE-12		-
SVE-3		-	Reserved	-	-

SVE 2 (DEEP) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:	NA	
Dilution Damper:	100% Open		Recycle Line:	0% Open	
Knockout Tank:	0 % Full		Temp:	NA ^{o}F	
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-11		-	Reserved	-	-
SVE-10 or SVE-13		-	Reserved	-	-
SVE-9		-	Reserved	-	-

COMBINED FLOW FOR SVE SYSTEM 1 & 2: Currently off EPA Request CFM

COMMENTS

SVE-1 & SVE-2 Currently off due to EPA Request.

GROUNDWATER EXTRACTION AND TREATMENT (GET) SYSTEM MEASUREMENTS AT THE PLC SCREEN:

Location	Flow Rate Set Point (GPM)	Flow Rate (GPM)	VFD Speed (HZ)	Water Column (FT)
RW-1	2.9	2.9	59.5	2.8
RW-2	7.0	7.0	56.4	2.4
RW-3	4.1	4.1	47.1	1.6
RW-4	6.5	6.5	53.2	1.3
RW-5	2.9	2.5	60.0	1.7
RW-6	6.8	0	0.0	19.7
RW-7	6.2	6.3	52.9	2.8
RW-8	99	99	59.8	12.5
Total Flow Rate	-	185	-	-

off due to pump/motor

	Stripper Tower Set Point (FT)	Total Flow (GPM)	VFD Speed (HZ)	Stripper Tower Level (FT)
Effluent Pump	6.0	91.2	15.5	6.0

Location	Reading		Location	Reading	
Influent Pressure	19.4	PSI	Effluent Pressure	0.2	PSI
Influent Pressure Δ	-0.2	PSI	Effluent Pressure Δ	1.5	PSI
Injection Well 1 - Water Column	60.8	FT	Injection Well 2 - Water Colum	-11.6	FT
Blower Pressure	2.5	"H2O	*Injection Well 2 (No Transducer)		

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM:

Location	Total Flow (gallons)	Location	Total Flow (gallons)
GET Water Room South Manifold, wells listed South to North		GET Water Room North Manifold, wells listed South to North	
RW-5	10128099	RW-7	135126112
RW-8	2268336080	RW-6	203707872
RW-3	7965869	RW-1	7195530
RW-4	14409075	RW-2	13250053

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM (Continued):

Total flow through stripper system: 185 gpm

Stripper tower magnehilic reading: 1.6 "H2O

BAG FILER PROCESS MEASUREMENTS:

Location	Reading	Location	Reading
Influent Filter Skid (west side)			
North Filter Housing			
Top Gauge	PSI: 22	Side Gauge	PSI: 16
Pressure Δ (Side PSI-Top PSI)			PSI: 6
South Filter Housing			
Top Gauge	PSI: 20	Side Gauge	PSI: 22
Pressure Δ (Side PSI-Top PSI)			PSI: 2
Effluent Filter Skid (east side)			
East Filter Housing			
Top Gauge	PSI: 0	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 0
West Filter Housing			
Top Gauge	PSI: 0	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 0

COMMENTS

PH Effluent: 7.1

OPERATIONS AND MAINTENANCE REPORT FORM
GARVEY ELEVATOR SITE, LTRA Task Order

DATE: 2/27/23 TIME: 815 - 1645

OPERATOR: JC OPERATOR ON SITE: 8.5 Hours

WEATHER: Sunny 42°

PPE: Hard Hat, Safty vest, Steel toes

1 hr - Om4m
7.5 hr - Pulling RW-6 & fixing Computer

DAILY CHECKLIST:

Vandalism/Damage to Site/Building Exterior: none

Vandalism/Damage to Process Area: none

Vandalism/Damage to Wells: none

Hours of Operation Since Last Oil Change: SVE 1: 98005.0

SVE 2: 8990.5

Hour of Operation Since Last Blower Lube: SVE 1: 98005.0

SVE 2: 8990.5

20' 3 1/2"
20' 2"
20' 2"
20' 2"
18' 2"
P4' 1"
20' 2"

Hours of Downtime:

MAINTENANCE ACTIVITIES/OBSERVATIONS/COMMENTS:

SVE-1 98813.4 Hrs.; "H2O

SVE-2 9798.8 Hrs.; "H2O

Comments Replacement motor: 21D14-10-01102C
Pump: 100121
Total RW-6 - 134 ft

RW-6 Old
Pump - A13BG0005-P21044051
motor - 19D14-23-004110C

SYSTEM MEASUREMENTS (To be recorded weekly and with any sampling event)

SVE 1 (SHALLOW) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:	NA	
Dilution Damper:	100% Open		Recycle Line:	0% Open	
Knockout Tank:	0 % Full		Temp:	NA ^{o}F	
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-4		-	SVE-5		-
SVE-8		-	SVE-6		-
SVE-1		-	SVE-2		-
SVE-7R		-	SVE-12		-
SVE-3		-	Reserved	-	-

SVE 2 (DEEP) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:	NA	
Dilution Damper:	100% Open		Recycle Line:	0% Open	
Knockout Tank:	0 % Full		Temp:	NA ^{o}F	
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-11		-	Reserved	-	-
SVE-10 or SVE-13		-	Reserved	-	-
SVE-9		-	Reserved	-	-

COMBINED FLOW FOR SVE SYSTEM 1 & 2: Currently off EPA Request CFM

COMMENTS

SVE-1 & SVE-2 Currently off due to EPA Request.

GROUNDWATER EXTRACTION AND TREATMENT (GET) SYSTEM MEASUREMENTS AT THE PLC SCREEN:

Location	Flow Rate Set Point (GPM)	Flow Rate (GPM)	VFD Speed (HZ)	Water Column (FT)
RW-1	2.9	2.9	59.7	2.9
RW-2	7.0	7.0	56.5	2.4
RW-3	4.1	4.1	45.9	1.1
RW-4	6.4	6.4	53.3	1.1
RW-5	2.7	2.7	57.4	1.4
RW-6	90	90	54.4	10.6
RW-7	6.2	6.2	53.2	2.3
RW-8	100	100	59.9	12.1
Total Flow Rate	-	275.1	-	-
	Stripper Tower Set Point (FT)	**Total Flow (GPM)**	**VFD Speed (HZ)**	**Stripper Tower Level (FT)**
Effluent Pump	6.0	110.9	28.7	6.0

Location	Reading		Location	Reading	
Influent Pressure	19.8	PSI	Effluent Pressure	0.5	PSI
Influent Pressure Δ	-0.1	PSI	Effluent Pressure Δ	1.2	PSI
Injection Well 1 - Water Column	62.3	FT	Injection Well 2 - Water Colum	-11.6	FT
Blower Pressure	2.5	"H2O	*Injection Well 2 (No Transducer)		

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM:

Location	Total Flow (gallons)	Location	Total Flow (gallons)
GET Water Room South Manifold, wells listed South to North		GET Water Room North Manifold, wells listed South to North	
RW-5	101560016	RW-7	135779264
RW-8	2278764l6	RW-6	203709824
RW-3	9008515	RW-1	M225719
RW-4	14475537	RW-2	13323045

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM (Continued):

Total flow through stripper system: 275.1 gpm

Stripper tower magnehilic reading: 1.8 "H2O

BAG FILER PROCESS MEASUREMENTS:

Location	Reading	Location	Reading
Influent Filter Skid (west side)			
North Filter Housing			
Top Gauge	PSI: 16	Side Gauge	PSI: 22
Pressure Δ (Side PSI-Top PSI)			PSI: 6
South Filter Housing			
Top Gauge	PSI: 26	Side Gauge	PSI: 22
Pressure Δ (Side PSI-Top PSI)			PSI: 2
Effluent Filter Skid (east side)			
East Filter Housing			
Top Gauge	PSI: 0	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 0
West Filter Housing			
Top Gauge	PSI: 0	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 0

COMMENTS

PH Effluent: 7.1

Attachment 2c:
O&M Logs for LTRA Activities during March 2023

SVE on @ 815 3/6/23

OPERATIONS AND MAINTENANCE REPORT FORM
GARVEY ELEVATOR SITE, LTRA Task Order

DATE: 3/7/23 TIME: 900 - 930

OPERATOR: JC OPERATOR ON SITE: _____ Hours

WEATHER: Cloudy 30°

PPE: Hard Hat, Safty vest, Steel toes

DAILY CHECKLIST:

Vandalism/Damage to Site/Building Exterior: None

Vandalism/Damage to Process Area: None

Vandalism/Damage to Wells: none

Hours of Operation Since Last Oil Change: SVE 1: 98005.0

SVE 2: 8990.5

Hour of Operation Since Last Blower Lube: SVE 1: 98005.0

SVE 2: 8990.5

Hours of Downtime: _____

MAINTENANCE ACTIVITIES/OBSERVATIONS/COMMENTS:

SVE-1 988395 Hrs.; "H2O

SVE-2 9.8239 Hrs.; "H2O

Comments

SYSTEM MEASUREMENTS (To be recorded weekly and with any sampling event)

SVE 1 (SHALLOW) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:	29	IN. H2O	Flow:	NA	
Dilution Damper:	100% Open		Recycle Line:	0% Open	
Knockout Tank:	0 % Full		Temp:	NA °F	
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-4	17.3	-	SVE-5	–	-
SVE-8	13.7	-	SVE-6	–	-
SVE-1	–	-	SVE-2	–	-
SVE-7R	14.3	-	SVE-12	22.6	-
SVE-3	20.1	-	Reserved	-	-

SVE 2 (DEEP) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:	75	IN. H2O	Flow:	NA	
Dilution Damper:	100% Open		Recycle Line:	0% Open	
Knockout Tank:	0 % Full		Temp:	NA °F	
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-11	180.2	-	Reserved	-	-
SVE-10 or SVE-13	143.9	-	Reserved	-	-
SVE-9	176.3	-	Reserved	-	-

COMBINED FLOW FOR SVE SYSTEM 1 & 2: 694.3 ~~Currently off EPA Request~~ CFM

COMMENTS

SVE-1 & SVE-2 Currently off due to EPA Request.

GROUNDWATER EXTRACTION AND TREATMENT (GET) SYSTEM MEASUREMENTS AT THE PLC SCREEN:

Location	Flow Rate Set Point (GPM)	Flow Rate (GPM)	VFD Speed (HZ)	Water Column (FT)
RW-1	2.9	2.9	59.3	2.2
RW-2	7.0	7.0	54.4	2.4
RW-3	4.3	4.3	46.1	1.2
RW-4	6.7	6.7	54.0	0.9
RW-5	2.9	2.9	59.5	1.6
RW-6	90	90	54.1	10.4
RW-7	59	59	52.7	2.7
RW-8	100	100	59.9	12.1
Total Flow Rate	-	272.8	-	-
	Stripper Tower Set Point (FT)	**Total Flow (GPM)**	**VFD Speed (HZ)**	**Stripper Tower Level (FT)**
Effluent Pump	6.0	144.0	25.7	4.0

Location	Reading		Location	Reading	
Influent Pressure	19.6	PSI	Effluent Pressure	0.3	PSI
Influent Pressure Δ	0.2	PSI	Effluent Pressure Δ	1.4	PSI
Injection Well 1 - Water Column	62.2	FT	Injection Well 2 - Water Colum	-11.4	FT
Blower Pressure	2.5	"H2O	*Injection Well 2 (No Transducer)		

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM:

Location	Total Flow (gallons)	Location	Total Flow (gallons)
GET Water Room South Manifold, wells listed South to North		GET Water Room North Manifold, wells listed South to North	
RW-5	10185424	RW-7	136427600
RW-8	22948112	RW-6	~~10185424~~ 204707040
RW-3	8053944	RW-1	7257864
RW-4	14545113	RW-2	13400767

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM (Continued):

Total flow through stripper system: 272.8 gpm

Stripper tower magnehilic reading: 2.1 "H2O

BAG FILER PROCESS MEASUREMENTS:

Location	Reading	Location	Reading
Influent Filter Skid (west side)			
North Filter Housing			
Top Gauge	PSI: 25	Side Gauge	PSI: 16
Pressure Δ (Side PSI-Top PSI)			PSI:
South Filter Housing			
Top Gauge	PSI: 20	Side Gauge	PSI: 22
Pressure Δ (Side PSI-Top PSI)			PSI:
Effluent Filter Skid (east side)			
East Filter Housing			
Top Gauge	PSI: 0	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI:
West Filter Housing			
Top Gauge	PSI: 0	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI:

COMMENTS

PH Effluent: 6.8

OPERATIONS AND MAINTENANCE REPORT FORM
GARVEY ELEVATOR SITE, LTRA Task Order

DATE: 3/14/23 TIME: 1130 - 1300

OPERATOR: JC OPERATOR ON SITE: 1.5 Hours

WEATHER: Sunny 34° .5 - working on computer

PPE: Hard Hat, Safty vest, Steel toes

DAILY CHECKLIST:

Vandalism/Damage to Site/Building Exterior: none

Vandalism/Damage to Process Area: none

Vandalism/Damage to Wells: none

Hours of Operation Since Last Oil Change: SVE 1: 98005.0

SVE 2: 8990.5

Hour of Operation Since Last Blower Lube: SVE 1: 98005.0

SVE 2: 8990.5

Hours of Downtime:

MAINTENANCE ACTIVITIES/OBSERVATIONS/COMMENTS:

SVE-1 98838.5 Hrs.; "H2O

SVE-2 9823.9 Hrs.; "H2O

Comments

SYSTEM MEASUREMENTS (To be recorded weekly and with any sampling event)

SVE 1 (SHALLOW) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:		NA
Dilution Damper:		100% Open	Recycle Line:		0% Open
Knockout Tank:		0 % Full	Temp:		NA °F
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-4		-	SVE-5		-
SVE-8		-	SVE-6		-
SVE-1		-	SVE-2		-
SVE-7R		-	SVE-12		-
SVE-3		-	Reserved	-	-

SVE 2 (DEEP) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:		NA
Dilution Damper:		100% Open	Recycle Line:		0% Open
Knockout Tank:		0 % Full	Temp:		NA °F
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-11		-	Reserved	-	-
SVE-10 or SVE-13		-	Reserved	-	-
SVE-9		-	Reserved	-	-

COMBINED FLOW FOR SVE SYSTEM 1 & 2: Currently off EPA Request CFM

COMMENTS

SVE-1 & SVE-2 Currently off due to EPA Request.

GROUNDWATER EXTRACTION AND TREATMENT (GET) SYSTEM MEASUREMENTS AT THE PLC SCREEN:

Location	Flow Rate Set Point (GPM)	Flow Rate (GPM)	VFD Speed (HZ)	Water Column (FT)
RW-1	2.9	2.9	59.4	2.4
RW-2	7.0	7.0	56.4	2.3
RW-3	4.2	4.2	45.8	1.0
RW-4	6.6	6.6	53.8	1.0
RW-5	3.0	3.0	57.7	1.3
RW-6	90	90	54.1	10.7
RW-7	59	59	52.0	2.3
RW-8	100	100	59.9	12.2
Total Flow Rate	-	272.7	-	-
	Stripper Tower Set Point (FT)	**Total Flow (GPM)**	**VFD Speed (HZ)**	**Stripper Tower Level (FT)**
Effluent Pump	6.0	136.4	25.7	6.0

Location	Reading		Location	Reading	
Influent Pressure	19.8	PSI	Effluent Pressure	-1.1	PSI
Influent Pressure Δ	0.2	PSI	Effluent Pressure Δ	1.4	PSI
Injection Well 1 - Water Column	62.2	FT	Injection Well 2 - Water Colum	-11.6	FT
Blower Pressure	2.5	"H2O	*Injection Well 2 (No Transducer)		

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM:

Location	Total Flow (gallons)	Location	Total Flow (gallons)
GET Water Room South Manifold, wells listed South to North		GET Water Room North Manifold, wells listed South to North	
RW-5	10214933	RW-7	~~1376~~ 137029734
RW-8	230003120	RW-6	205623584
RW-3	8096627	RW-1	7287410
RW-4	14611043	RW-2	134172198

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM (Continued):

Total flow through stripper system: 272.7 gpm

Stripper tower magnehilic reading: 2.0 "H2O

BAG FILER PROCESS MEASUREMENTS:

Location	Reading	Location	Reading
Influent Filter Skid (west side)			
North Filter Housing			
Top Gauge	PSI: 22	Side Gauge	PSI: 16
Pressure Δ (Side PSI-Top PSI)			PSI: 6
South Filter Housing			
Top Gauge	PSI: 20	Side Gauge	PSI: 22
Pressure Δ (Side PSI-Top PSI)			PSI: 2
Effluent Filter Skid (east side)			
East Filter Housing			
Top Gauge	PSI: 0	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 0
West Filter Housing			
Top Gauge	PSI: 0	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 0

COMMENTS

PH Effluent: 7.3

OPERATIONS AND MAINTENANCE REPORT FORM
GARVEY ELEVATOR SITE, LTRA Task Order

DATE: 3/20/23 TIME: 930 - 1100

OPERATOR: JC OPERATOR ON SITE: 1.5 Hours
.5 fixing computer

WEATHER: Sunny 40°

PPE: Hard Hat, Safty vest, Steel toes

DAILY CHECKLIST:

Vandalism/Damage to Site/Building Exterior: None

Vandalism/Damage to Process Area: None

Vandalism/Damage to Wells: none

Hours of Operation Since Last Oil Change: SVE 1: 98005.0

SVE 2: 8990.5

Hour of Operation Since Last Blower Lube: SVE 1: 98005.0

SVE 2: 8990.5

Hours of Downtime:

MAINTENANCE ACTIVITIES/OBSERVATIONS/COMMENTS:

SVE-1 98838.5 Hrs.; "H2O

SVE-2 9823.9 Hrs.; "H2O

Comments

SYSTEM MEASUREMENTS (To be recorded weekly and with any sampling event)

SVE 1 (SHALLOW) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:	NA	
Dilution Damper:	100% Open		Recycle Line:	0% Open	
Knockout Tank:	0 % Full		Temp:	NA ^{o}F	
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-4		-	SVE-5		-
SVE-8		-	SVE-6		-
SVE-1		-	SVE-2		-
SVE-7R		-	SVE-12		-
SVE-3		-	Reserved	-	-

SVE 2 (DEEP) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:	NA	
Dilution Damper:	100% Open		Recycle Line:	0% Open	
Knockout Tank:	0 % Full		Temp:	NA ^{o}F	
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-11		-	Reserved	-	-
SVE-10 or SVE-13		-	Reserved	-	-
SVE-9		-	Reserved	-	-

COMBINED FLOW FOR SVE SYSTEM 1 & 2: Currently off EPA Request CFM

COMMENTS

SVE-1 & SVE-2 Currently off due to EPA Request.

GROUNDWATER EXTRACTION AND TREATMENT (GET) SYSTEM MEASUREMENTS AT THE PLC SCREEN:

Location	Flow Rate Set Point (GPM)	Flow Rate (GPM)	VFD Speed (HZ)	Water Column (FT)
RW-1	2.9	2.9	59.4	2.7
RW-2	7.0	7.0	56.4	2.3
RW-3	4.1	4.1	46.5	3.6
RW-4	6.7	6.7	54.1	1.0
RW-5	3.2	3.2	58.1	0.9
RW-6	90	90	54.1	10.7
RW-7	58	58	52.7	2.4
RW-8	100	100	59.2	12.1
Total Flow Rate	-	271.9	-	-
	Stripper Tower Set Point (FT)	**Total Flow (GPM)**	**VFD Speed (HZ)**	**Stripper Tower Level (FT)**
Effluent Pump	6.0	144.1	25.4	6.0

Location	Reading		Location	Reading	
Influent Pressure	19.9	PSI	Effluent Pressure	-1.1	PSI
Influent Pressure Δ	0.2	PSI	Effluent Pressure Δ	1.3	PSI
Injection Well 1 - Water Column	62.0	FT	Injection Well 2 - Water Colum	-11.6	FT
Blower Pressure	2.5	"H2O	*Injection Well 2 (No Transducer)		

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM:

Location	Total Flow (gallons)	Location	Total Flow (gallons)
GET Water Room South Manifold, wells listed South to North		GET Water Room North Manifold, wells listed South to North	
RW-5	10242141	RW-7	137518416
RW-8	230857248	RW-6	206391824
RW-3	8107436	RW-1	7312174
RW-4	14646127	RW-2	13532072

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM (Continued):

Total flow through stripper system: 271.9 gpm

Stripper tower magnehilic reading: 1.8 "H2O

BAG FILER PROCESS MEASUREMENTS:

Location	Reading	Location	Reading
Influent Filter Skid (west side)			
North Filter Housing			
Top Gauge	PSI: 22	Side Gauge	PSI: 16
Pressure Δ (Side PSI-Top PSI)			PSI: 6
South Filter Housing			
Top Gauge	PSI: 20	Side Gauge	PSI: 22
Pressure Δ (Side PSI-Top PSI)			PSI: 2
Effluent Filter Skid (east side)			
East Filter Housing			
Top Gauge	PSI: 0	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 0
West Filter Housing			
Top Gauge	PSI: 0	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 0

COMMENTS

PH Effluent: 7.0

OPERATIONS AND MAINTENANCE REPORT FORM
GARVEY ELEVATOR SITE, LTRA Task Order

DATE: 03/27/2023

TIME: 11:30 ~~12:45~~ - 2:30

OPERATOR: Cody Crater

OPERATOR ON SITE: 3 Hours

WEATHER: 31, Sunny

0.5hrs none Routine, searched for remediation shed & computer work

PPE: Yes

DAILY CHECKLIST:

Vandalism/Damage to Site/Building Exterior: NA

Vandalism/Damage to Process Area: NA

Vandalism/Damage to Wells: NA

Hours of Operation Since Last Oil Change: SVE 1: 98005.0

SVE 2: 8990.5

Hour of Operation Since Last Blower Lube: SVE 1: 98005.0

SVE 2: 8990.5

Hours of Downtime:

MAINTENANCE ACTIVITIES/OBSERVATIONS/COMMENTS:

SVE-1 98838.5 Hrs.; "H2O

SVE-2 9823.9 Hrs.; "H2O

Comments

SYSTEM MEASUREMENTS (To be recorded weekly and with any sampling event)

SVE 1 (SHALLOW) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:		NA
Dilution Damper:		100% Open	Recycle Line:		0% Open
Knockout Tank:		0 % Full	Temp:		NA ^{o}F
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-4		-	SVE-5		-
SVE-8		-	SVE-6		-
SVE-1		-	SVE-2		-
SVE-7R		-	SVE-12		-
SVE-3		-	Reserved	-	-

SVE 2 (DEEP) PROCESS MEASUREMENTS: Currently Off EPA Request

System Vacuum:		IN. H2O	Flow:		NA
Dilution Damper:		100% Open	Recycle Line:		0% Open
Knockout Tank:		0 % Full	Temp:		NA ^{o}F
Location	**Flow (CFM)**	**Vacuum (In. H_2O)**	**Location**	**Flow (CFM)**	**Vacuum (In. H_2O)**
Interior South Manifold, wells listed South to North			Outside Manifold, Well listed East to West		
SVE-11		-	Reserved	-	-
SVE-10 or SVE-13		-	Reserved	-	-
SVE-9		-	Reserved	-	-

COMBINED FLOW FOR SVE SYSTEM 1 & 2: Currently off EPA Request CFM

COMMENTS

SVE-1 & SVE-2 Currently off due to EPA Request.

GROUNDWATER EXTRACTION AND TREATMENT (GET) SYSTEM MEASUREMENTS AT THE PLC SCREEN:

Location	Flow Rate Set Point (GPM)	Flow Rate (GPM)	VFD Speed (HZ)	Water Column (FT)
RW-1	2.9	2.9	59.4	2.2
RW-2	7.0	7.0	56.3	2.2
RW-3	4.1	4.1	46.4	1.9
RW-4	6.6	6.6	54.0	0.9
RW-5	3.1	3.1	58.0	1.1
RW-6	90	90	54.1	10.6
RW-7	57	57	52.7	2.3
RW-8	100	100	59.9	12.0
Total Flow Rate	-	270.70	-	-
	Stripper Tower Set Point (FT)	**Total Flow (GPM)**	**VFD Speed (HZ)**	**Stripper Tower Level (FT)**
Effluent Pump	6.0	143.8	25.6	6.0

Location	Reading		Location	Reading	
Influent Pressure	19.8	PSI	Effluent Pressure	0.1	PSI
Influent Pressure Δ	0.1 ~~19.9~~	PSI	Effluent Pressure Δ	+1.2	PSI
Injection Well 1 - Water Column	62.3	FT	Injection Well 2 - Water Colum	-11.6	FT
Blower Pressure	2.5	"H2O	*Injection Well 2 (No Transducer)		

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM:

Location	Total Flow (gallons)	Location	Total Flow (gallons)
GET Water Room South Manifold, wells listed South to North		GET Water Room North Manifold, wells listed South to North	
RW-5	10274304	RW-7	138106320
RW-8	2318814172	RW-6	207312928
RW-3	8149391	RW-1	7341863
RW-4	147328825	RW-2	13603857

GET SYSTEM MEASUREMENTS IN THE GET WATER ROOM (Continued):

Total flow through stripper system: ~~19.82~~ 270.7 gpm

Stripper tower magnehilic reading: ~~2.6~~ 1.8 "H2O

BAG FILER PROCESS MEASUREMENTS:

Location	Reading	Location	Reading
Influent Filter Skid (west side)			
North Filter Housing			
Top Gauge	PSI: 20	Side Gauge	PSI: 22
Pressure Δ (Side PSI-Top PSI)			PSI: 2
South Filter Housing			
Top Gauge	PSI: 26	Side Gauge	PSI: 16
Pressure Δ (Side PSI-Top PSI)			PSI: 10
Effluent Filter Skid (east side)			
East Filter Housing			
Top Gauge	PSI: 0	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 0
West Filter Housing			
Top Gauge	PSI: 0	Side Gauge	PSI: 0
Pressure Δ (Side PSI-Top PSI)			PSI: 0

COMMENTS

PH Effluent: 7.3

Attachment 3a:
EPA Region 7 Laboratory Analytical Report for WO 2300072

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue
Kansas City, KS 66101

Date: 04/05/2023

Subject: Transmittal of Sample Analysis Results for WO#: **2300072**
Project ID: APA72Z01
Project: Garvey Elevator - Quarterly GW AP

From: Samuel R. Porter, Acting Chief
Laboratory Technology & Analysis Branch for M. Gunsalus
Laboratory Services and Applied Sciences Division

To: Angela Puls
R7 Superfund and Emergency Management
SEMD/REMB/SRES

Enclosed are the analytical data for the above-referenced Work Order[s] (WO) and Project. These results are based on samples as received at the Science and Technology Center. The Regional Laboratory has reviewed and verified the results in accordance with procedures described in our Quality Manual (QM). In addition to all of the analytical results, this transmittal contains pertinent information that may have influenced the reported results and documents any deviations from the established requirements of the QM.

Please ensure that you file this electronic transmittal in your records management system. The Regional Laboratory will retain all the original documentation (e.g. COC[s], supporting files, etc.) according to our LSASD records management system. Please contact us within 14 days of receipt of this package if you determine there is a need for any changes. The process of disposing of the samples for this WO will be initiated 30 days from the date of this transmittal unless an alternate release date is specified on the Online Sample/Data Disposition and Customer Survey.

If you have any questions or concerns relating to this data package, contact our customer service line at 913-551-5295 or email R7_STC_Helpline@epa.gov.

Table of Contents

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:**	**2300072**	
R7 Superfund and Emergency Management	Project ID:	APA72Z01	**Reported:**
SEMD/REMB/SRES	Project:	Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Summary Information for the Project in this Report

Project Manager: Angela Puls

Organization: SEMD/REMB/SRES

Project ID: APA72Z01

Project Description: Garvey Elevator - Quarterly GW AP

Location: Hastings

State: Nebraska

Program: BIL Superfund RA/LTRA

Site Name: GARVEY ELEVATOR

Site ID: A72Z

Site OU: 01

GPRA Code: 000DD2

Purpose: BIL Superfund RA/LTRA

QAPP Number:

Samples in this Report

Lab ID	Sample	Matrix	Date Sampled	Date Received
2300072-01	RW-1	Water	03/06/2023 08:55	03/09/2023
2300072-02	RW-2	Water	03/06/2023 09:10	03/09/2023
2300072-03	RW-3	Water	03/06/2023 09:15	03/09/2023
2300072-04	RW-4	Water	03/06/2023 09:20	03/09/2023
2300072-05	RW-5	Water	03/06/2023 09:25	03/09/2023
2300072-06	RW-6	Water	03/06/2023 09:30	03/09/2023
2300072-07	RW-7	Water	03/06/2023 09:35	03/09/2023
2300072-08	RW-8	Water	03/06/2023 09:40	03/09/2023
2300072-09	Influent	Water	03/06/2023 09:45	03/09/2023
2300072-10	Dup (Influent)	Water	03/06/2023 09:45	03/09/2023
2300072-11	Effluent	Water	03/06/2023 09:50	03/09/2023
2300072-12	MW-31A	Water	03/07/2023 12:05	03/09/2023
2300072-13	MW-30A	Water	03/07/2023 12:50	03/09/2023
2300072-14	MW-20A	Water	03/07/2023 15:30	03/09/2023
2300072-15	MW-19A	Water	03/07/2023 16:20	03/09/2023
2300072-16	MW-48B	Water	03/08/2023 07:45	03/09/2023
2300072-17	MW-51B	Water	03/08/2023 07:57	03/09/2023
2300072-18	MW-6A	Water	03/08/2023 08:09	03/09/2023
2300072-19	MW-3B	Water	03/08/2023 08:19	03/09/2023
2300072-20	MW-49B	Water	03/08/2023 08:25	03/09/2023
2300072-21	MW-47B	Water	03/08/2023 08:34	03/09/2023
2300072-22	MW-50B	Water	03/08/2023 08:43	03/09/2023
2300072-23	MW-4B	Water	03/08/2023 08:52	03/09/2023
2300072-24	Dup (MW-4B)	Water	03/08/2023 08:52	03/09/2023
2300072-25	MW-5A	Water	03/08/2023 09:13	03/09/2023
2300072-26	MW-5B	Water	03/08/2023 09:22	03/09/2023
2300072-27	Trip Blank	Water	03/08/2023 10:06	03/09/2023
2300072-28	Equipment Blank	Water	03/08/2023 10:33	03/09/2023

United States Environmental Protection Agency
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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results

Lab ID: **2300072-01**

Sample ID: **RW-1** **Matrix:** **Water** **Sampled:** **03/06/23 08:55**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-02**

Sample ID: **RW-2** **Matrix:** **Water** **Sampled:** **03/06/23 09:10**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**10**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-03**

Sample ID: **RW-3** **Matrix:** **Water** **Sampled:** **03/06/23 09:15**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**19**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-04**

Sample ID: **RW-4** **Matrix:** **Water** **Sampled:** **03/06/23 09:20**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**8.0**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-05**

Sample ID: **RW-5** **Matrix:** **Water** **Sampled:** **03/06/23 09:25**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**1.1**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-06**

Sample ID: **RW-6** **Matrix:** **Water** **Sampled:** **03/06/23 09:30**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**3.2**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-07**

Sample ID: **RW-7** **Matrix:** **Water** **Sampled:** **03/06/23 09:35**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**21**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-08**

Sample ID: **RW-8** **Matrix:** **Water** **Sampled:** **03/06/23 09:40**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**6.2**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-09**

Sample ID: **Influent** **Matrix:** **Water** **Sampled:** **03/06/23 09:45**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**8.6**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-10**

Sample ID: **Dup (Influent)** **Matrix:** **Water** **Sampled:** **03/06/23 09:45**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**8.6**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-11**

Sample ID: **Effluent** **Matrix:** **Water** **Sampled:** **03/06/23 09:50**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-12**

Sample ID: **MW-31A** **Matrix:** **Water** **Sampled:** **03/07/23 12:05**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	**4.2**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**4.4**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-13**

Sample ID: **MW-30A** **Matrix:** **Water** **Sampled:** **03/07/23 12:50**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**27**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-14**

Sample ID: **MW-20A** **Matrix:** **Water** **Sampled:** **03/07/23 15:30**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-15**

Sample ID: **MW-19A** **Matrix:** **Water** **Sampled:** **03/07/23 16:20**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**5.3**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
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Sample Results
(Continued)

Lab ID: **2300072-16**

Sample ID: **MW-48B** **Matrix:** **Water** **Sampled:** **03/08/23 07:45**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**140**		10	ug/L	03/13/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-17**

Sample ID: **MW-51B** **Matrix:** **Water** **Sampled:** **03/08/23 07:57**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	**3.3**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**490**		100	ug/L	03/13/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-18**

Sample ID: **MW-6A** **Matrix:** **Water** **Sampled:** **03/08/23 08:09**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**1.4**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-19**

Sample ID: **MW-3B** **Matrix:** **Water** **Sampled:** **03/08/23 08:19**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**53**		10	ug/L	03/13/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-20**

Sample ID: **MW-49B** **Matrix:** **Water** **Sampled:** **03/08/23 08:25**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**3.3**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-21**

Sample ID: **MW-47B** **Matrix:** **Water** **Sampled:** **03/08/23 08:34**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**1.9**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-22**

Sample ID: **MW-50B** **Matrix:** **Water** **Sampled:** **03/08/23 08:43**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**59**		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-23**

Sample ID: **MW-4B** **Matrix:** **Water** **Sampled:** **03/08/23 08:52**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**74**		10	ug/L	03/13/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/10/2023	SW-846 Method 8260 / EPA-624

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-24**

Sample ID: **Dup (MW-4B)** **Matrix:** **Water** **Sampled:** **03/08/23 08:52**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**74**		10	ug/L	03/13/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-25**

Sample ID: **MW-5A** **Matrix:** **Water** **Sampled:** **03/08/23 09:13**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**4.2**		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-26**

Sample ID: **MW-5B** **Matrix:** **Water** **Sampled:** **03/08/23 09:22**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	**42**		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624

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Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-27**

Sample ID: **Trip Blank** **Matrix:** **Water** **Sampled:** **03/08/23 10:06**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	ND		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624

United States Environmental Protection Agency
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300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Sample Results
(Continued)

Lab ID: **2300072-28**

Sample ID: **Equipment Blank** **Matrix:** **Water** **Sampled:** **03/08/23 10:33**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.13**
Chloroform	ND		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624
Carbon Tetrachloride	ND		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624
Trichloroethene	ND		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624
Tetrachloroethene	ND		1.0	ug/L	03/11/2023	SW-846 Method 8260 / EPA-624

United States Environmental Protection Agency
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300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Certified Analyses included in this Report

Analyte	CAS #	Certifications
SW-846 Method 8260 / EPA-624 in Water		***VOC 3230.13***
Chloroform	67-66-3	ISO
Carbon Tetrachloride	56-23-5	ISO
Trichloroethene	79-01-6	ISO
Tetrachloroethene	127-18-4	ISO

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

List of Certifications

Code	Description	Number	Expires
ISO Mobile	ISO/IEC 17025:2017 - Environmental Testing	L22-243	05/31/2024
ISO	ISO/IEC 17025:2017 - Environmental Testing	L22-243	05/31/2024

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:**	**2300072**	
R7 Superfund and Emergency Management	Project ID:	APA72Z01	**Reported:**
SEMD/REMB/SRES	Project:	Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Explanation of Qualifiers used on this report

Item	Definition
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300072**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly GW AP	04/05/2023 15:15

Explanation of Units used on this report

Units	Description
%	Percent
[blank]	
boat	Milestone boat
Deg C	Degrees Celcius
g	Grams
g/min	Gallons per Minute
m2	Square Meters
mg	Milligrams
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
mL	Milliliters
mL/L/hr	Milliliters per Liter per Hour
mm	Millimeters
mm/sec	Millimeters per second
MPN/100mL	Most Probable Number per One Hundred Milliliters
mV	Millivolts
ng	Nanograms
ng/kg	Nanograms per Kilogram
ng/L	Nanograms per Liter
NTU	Nephelometric Turbidity Unit
P/A	Presence/Absence
pg/cm2	Picograms per Square Centimeter
pg/L	Picograms per Liter
pg/m3	Picograms per Cubic Meter
SU	Standard Unit
ug/cm2	Micrograms per Square Centimeter
ug/kg	Micrograms per Kilogram
ug/L	Micrograms per Liter
ug/m2	Micrograms per Square Meter
ug/m3	Micrograms per Cubic Meter
ug/mL	Micrograms per Milliliter
uL	Microliters
umhos/cm	Micromhos per Centimeter
umoles/g	Micromoles per Gram
uS/cm	Microsiemens per Centimeter

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:**	**2300072**
R7 Superfund and Emergency Management	Project ID:	APA72Z01
SEMD/REMB/SRES	Project:	Garvey Elevator - Quarterly GW AP
		Reported: 04/05/2023 15:15

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
			Default Report (not modified)
			VERSION 6.22:1009
	VOC 3230.13	(Water)	H-Flags used
2300072-26	VOC 3230.13	Carbon Tetrachloride	MSB-05: Matrix Spiked and Matrix Spike Duplicate were spiked at a concentration significantly lower than the concentration found in the original sample. Spike recoveries were not used to evaluate data quality.
B23C034-MS2	VOC 3230.13	Carbon Tetrachloride	Exceeds lower control limit
B23C034-MS2	VOC 3230.13	Carbon Tetrachloride	MSB-05: Matrix Spiked and Matrix Spike Duplicate were spiked at a concentration significantly lower than the concentration found in the original sample. Spike recoveries were not used to evaluate data quality.
B23C034-MSD2	VOC 3230.13	Carbon Tetrachloride	Exceeds lower control limit
B23C034-MSD2	VOC 3230.13	Carbon Tetrachloride	MSB-05: Matrix Spiked and Matrix Spike Duplicate were spiked at a concentration significantly lower than the concentration found in the original sample. Spike recoveries were not used to evaluate data quality.

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

EPA PROJECT MANAGER (Print)	SITE OR SAMPLING EVENT	DATE OF SAMPLE COLLECTION(S)	COC PAGE
Angela Puls	Garvey Elevator - 1st Quarter	3 (MONTH) 6 - 8 (DAY) 2023 (YEAR)	1 of 2

CONTENTS OF SHIPMENT

WORK ORDER (WO) AND SAMPLE NUMBER (e.g. 2200058-01)	TYPE OF CONTAINERS: 1 L PLASTIC BOTTLE	CANISTER	BOTTLE	BOTTLE	VOA SET (3 VIALS EA)	SAMPLED MEDIA: WATER	SO LID	HAZ WASTE	AIR	OTHER	RECEIVING LABORATORY REMARKS OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBER(S) OF CONTAINERS PER SAMPLE NUMBER										
2300072-01					3	✓					Triple Volume, MS/MSD
2300072-02					1	✓					
2300072-03					1	✓					
2300072-04					1	✓					
2300072-05					1	✓					
2300072-06					1	✓					
2300072-07					1	✓					
2300072-08					1	✓					
2300072-09					1	✓					
2300072-10					1	✓					Field Duplicate-1
2300072-11					1	✓					
2300072-12					1	✓					
2300072-13					1	✓					
2300072-14					1	✓					
2300072-15					1	✓					
2300072-16					1	✓					
2300072-17					1	✓					
2300072-18					1	✓					
2300072-19					1	✓					
2300072-20					1	✓					
2300072-21					1	✓					
2300072-22					1	✓					
2300072-23					1	✓					
2300072-24					1	✓					Field Duplicate-2

DESCRIPTION OF SHIPMENT

32 CONTAINER(S) CONSISTING OF _____ CRATE(S)

1 ICE CHEST(S): OTHER w/WO 2300073 nr3/9/23

MODE OF SHIPMENT

☐ COMMERCIAL CARRIER _____

☑ SAMPLER CONVEYED _____ (SHIPPING AIRBILL NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
Cody Crater SEALED ○ UNSEALED ○	NICOLE ROBLEZ Digitally signed by NICOLE ROBLEZ Date: 2023.03.09 10:21:00 -08'00' SEALED ○ UNSEALED ○	STC Analyses
RELINQUISHED BY (PM/SAMPLER) SEALED ○ UNSEALED ○	RECEIVED BY SEALED ○ UNSEALED ○	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY (PM/SAMPLER) SEALED ○ UNSEALED ○	RECEIVED BY SEALED ○ UNSEALED ○	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY (PM/SAMPLER) SEALED ○ UNSEALED ○	RECEIVED BY SEALED ○ UNSEALED ○	REASON FOR CHANGE OF CUSTODY

7-EPA-9282 (REV 4/17)

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

EPA PROJECT MANAGER (Print)	SITE OR SAMPLING EVENT	DATE OF SAMPLE COLLECTION(S)	COC PAGE
Angela Puls	Garvey Elevator - 1st Quarter	3 (MONTH) 6 - 8 (DAY) 2023 (YEAR)	2 of 2

CONTENTS OF SHIPMENT

WORK ORDER (WO) AND SAMPLE NUMBER (e.g. 2200058-01)	TYPE OF CONTAINERS: 1 L PLASTIC BOTTLE	CANISTER	BOTTLE	BOTTLE	VOA SET (3 VIALS EA)	SAMPLED MEDIA: WATER	SOLID	NAPL/WASTE	AIR	OTHER	RECEIVING LABORATORY REMARKS OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBER(S) OF CONTAINERS PER SAMPLE NUMBER										
2300072-25					1	✓					
2300072-26					3	✓					Triple Volume, MS/MSD
2300072-27					1	✓					Trip Blank
2300072-28					1	✓					Equipment Blank
WO Complete											
											Cooler hand-delivered to the STC with a
											temp of 1-2degC. nr3/9/2023

DESCRIPTION OF SHIPMENT

32 CONTAINER(S) CONSISTING OF _____ CRATE(S)

1 ICE CHEST(S): OTHER w/WO 2300073 nr3/9/23

MODE OF SHIPMENT

☐ COMMERCIAL CARRIER _____

☑ SAMPLER CONVEYED _____ (SHIPPING AIRBILL NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
Cody Crater [redacted]	NICOLE ROBLEZ Digitally signed by NICOLE ROBLEZ Date: 2023.03.09 10:22:00 -08'00'	STC Analyses
◉ SEALED ○ UNSEALED	◉ SEALED ○ UNSEALED	
RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
○ SEALED ○ UNSEALED	○ SEALED ○ UNSEALED	
RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
○ SEALED ○ UNSEALED	○ SEALED ○ UNSEALED	
RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
○ SEALED ○ UNSEALED	○ SEALED ○ UNSEALED	

7-EPA-6282 (REV 4/17)

Attachment 3b:
EPA Region 7 Laboratory Analytical Report for WO 2300073

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue
Kansas City, KS 66101

Date: 03/21/2023

Subject: Transmittal of Sample Analysis Results for WO#: **2300073**
Project ID: APA72Z01
Project: Garvey Elevator - Quarterly SVE Vapor AP

From: Samuel R. Porter, Acting Chief
FOR Laboratory Technology & Analysis Branch
Laboratory Services and Applied Sciences Division

To: Angela Puls
R7 Superfund and Emergency Management
SEMD/REMB/SRES

Enclosed are the analytical data for the above-referenced Work Order[s] (WO) and Project. These results are based on samples as received at the Science and Technology Center. The Regional Laboratory has reviewed and verified the results in accordance with procedures described in our Quality Manual (QM). In addition to all of the analytical results, this transmittal contains pertinent information that may have influenced the reported results and documents any deviations from the established requirements of the QM.

Please ensure that you file this electronic transmittal in your records management system. The Regional Laboratory will retain all the original documentation (e.g. COC[s], supporting files, etc.) according to our LSASD records management system. Please contact us within 14 days of receipt of this package if you determine there is a need for any changes. The process of disposing of the samples for this WO will be initiated 30 days from the date of this transmittal unless an alternate release date is specified on the Online Sample/Data Disposition and Customer Survey.

If you have any questions or concerns relating to this data package, contact our customer service line at 913-551-5295 or email R7_STC_Helpline@epa.gov.

Table of Contents

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:**	**2300073**	
R7 Superfund and Emergency Management	Project ID:	APA72Z01	**Reported:**
SEMD/REMB/SRES	Project:	Garvey Elevator - Quarterly SVE Vapor AP	03/21/2023 11:38

Summary Information for the Project in this Report

Project Manager: Angela Puls **Organization:** SEMD/REMB/SRES

Project ID: APA72Z01

Project Description: Garvey Elevator - Quarterly SVE Vapor AP

Location: Hastings **State:** Nebraska **Program:** BIL Superfund RA/LTRA

Site Name: GARVEY ELEVATOR

Site ID: A72Z **Site OU:** 01 **GPRA Code:** 000DD2

Purpose: BIL Superfund RA/LTRA **QAPP Number:**

Samples in this Report

Lab ID	Sample	Matrix	Date Sampled	Date Received
2300073-01	SVE-3	Air	03/07/2023 08:28	03/09/2023
2300073-02	SVE-4	Air	03/07/2023 08:31	03/09/2023
2300073-03	SVE-7R	Air	03/07/2023 08:36	03/09/2023
2300073-04	SVE-8	Air	03/07/2023 08:38	03/09/2023
2300073-05	SVE-9	Air	03/07/2023 08:41	03/09/2023
2300073-06	SVE-10	Air	03/07/2023 08:44	03/09/2023
2300073-07	SVE-11	Air	03/07/2023 08:47	03/09/2023
2300073-08	SVE-12	Air	03/07/2023 08:50	03/09/2023
2300073-09	Effluent	Air	03/07/2023 09:00	03/09/2023
2300073-10	Field Dup (Effluent)	Air	03/07/2023 09:00	03/09/2023

Additional Sample Information

Results as provided by the field sampler. No significant figure rules applied.

Lab ID	CANISTER ID	STARTING PRESSURE (inHg)	ENDING PRESSURE (inHg)
2300073-01	697	27.5	1.5
2300073-02	857	27.5	2.5
2300073-03	810	27.5	1.5
2300073-04	895	27.5	1.5
2300073-05	930	27.5	0.5
2300073-06	918	27.5	0.5
2300073-07	601	27.5	3.5
2300073-08	602	27.5	4
2300073-09	896	27.5	4
2300073-10	707	26.5	2

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300073**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly SVE Vapor AP	03/21/2023 11:38

Analysis Case Narrative

Air Volatiles

Chloroform was UJ-coded in samples 09 and 10. This analyte was not found in the samples at or above the reporting limit, however, the reporting limit is an estimate (UJ-coded) due to low recovery (84.1%, lower limit 85%) of this analyte in the laboratory control sample. The actual reporting limit for this analyte may be higher than the reported value.

Chloroform was J-coded in samples 01 - 08. Although the analyte in question has been positively identified in the samples, the quantitation is an estimate (J-coded) due to low recovery (84.1%, lower limit 85%) of this analyte in the laboratory control sample. The actual concentration for this analyte may be higher than the reported value.

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300073**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly SVE Vapor AP	03/21/2023 11:38

Sample Results

Lab ID: **2300073-01**

Sample ID: **SVE-3** **Matrix:** **Air** **Sampled:** **03/07/23 08:28**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.04**
Chloroform	**0.85**	J	0.12	ug/m3	03/13/2023	TO-15
Carbon Tetrachloride	**41**		0.32	ug/m3	03/13/2023	TO-15
Tetrachloroethene	**0.38**		0.34	ug/m3	03/13/2023	TO-15

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300073**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly SVE Vapor AP	03/21/2023 11:38

Sample Results
(Continued)

Lab ID: **2300073-02**

Sample ID: **SVE-4** **Matrix:** **Air** **Sampled:** **03/07/23 08:31**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.04**
Chloroform	**1.6**	J	0.12	ug/m3	03/13/2023	TO-15
Carbon Tetrachloride	**85**		0.32	ug/m3	03/13/2023	TO-15
Tetrachloroethene	**0.80**		0.34	ug/m3	03/13/2023	TO-15

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300073**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly SVE Vapor AP	03/21/2023 11:38

Sample Results
(Continued)

Lab ID: **2300073-03**

Sample ID: **SVE-7R** **Matrix:** **Air** **Sampled:** **03/07/23 08:36**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.04**
Chloroform	**35**	J	0.12	ug/m3	03/14/2023	TO-15
Carbon Tetrachloride	**21000**		64	ug/m3	03/14/2023	TO-15
Tetrachloroethene	**32**		0.34	ug/m3	03/14/2023	TO-15

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300073**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly SVE Vapor AP	03/21/2023 11:38

Sample Results
(Continued)

Lab ID: **2300073-04**

Sample ID: **SVE-8** **Matrix:** **Air** **Sampled:** **03/07/23 08:38**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.04**
Chloroform	**1.0**	J	0.12	ug/m3	03/13/2023	TO-15
Carbon Tetrachloride	**71**		0.32	ug/m3	03/13/2023	TO-15
Tetrachloroethene	**1.3**		0.34	ug/m3	03/13/2023	TO-15

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300073**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly SVE Vapor AP	03/21/2023 11:38

Sample Results
(Continued)

Lab ID: **2300073-05**

Sample ID: **SVE-9** **Matrix:** **Air** **Sampled:** **03/07/23 08:41**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.04**
Chloroform	**0.61**	J	0.12	ug/m3	03/13/2023	TO-15
Carbon Tetrachloride	**300**		3.2	ug/m3	03/14/2023	TO-15
Tetrachloroethene	**0.48**		0.34	ug/m3	03/13/2023	TO-15

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300073**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly SVE Vapor AP	03/21/2023 11:38

Sample Results
(Continued)

Lab ID: **2300073-06**

Sample ID: **SVE-10** **Matrix:** **Air** **Sampled:** **03/07/23 08:44**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.04**
Chloroform	**0.59**	J	0.12	ug/m3	03/13/2023	TO-15
Carbon Tetrachloride	**310**		3.2	ug/m3	03/14/2023	TO-15
Tetrachloroethene	**0.49**		0.34	ug/m3	03/13/2023	TO-15

United States Environmental Protection Agency
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Angela Puls	**WO#:** **2300073**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly SVE Vapor AP	03/21/2023 11:38

Sample Results
(Continued)

Lab ID: **2300073-07**

Sample ID: **SVE-11** **Matrix:** **Air** **Sampled:** **03/07/23 08:47**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.04**
Chloroform	**0.62**	J	0.12	ug/m3	03/13/2023	TO-15
Carbon Tetrachloride	**380**		3.2	ug/m3	03/14/2023	TO-15
Tetrachloroethene	**0.61**		0.34	ug/m3	03/13/2023	TO-15

United States Environmental Protection Agency
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300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300073**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly SVE Vapor AP	03/21/2023 11:38

Sample Results
(Continued)

Lab ID: **2300073-08**

Sample ID: **SVE-12** **Matrix:** **Air** **Sampled:** **03/07/23 08:50**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.04**
Chloroform	**0.12**	J	0.12	ug/m3	03/14/2023	TO-15
Carbon Tetrachloride	**13**		0.32	ug/m3	03/14/2023	TO-15
Tetrachloroethene	ND		0.34	ug/m3	03/14/2023	TO-15

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300073**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly SVE Vapor AP	03/21/2023 11:38

Sample Results
(Continued)

Lab ID: **2300073-09**

Sample ID: **Effluent** **Matrix:** **Air** **Sampled:** **03/07/23 09:00**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.04**
Chloroform	ND	UJ	0.12	ug/m3	03/14/2023	TO-15
Carbon Tetrachloride	**1.2**		0.32	ug/m3	03/14/2023	TO-15
Tetrachloroethene	ND		0.34	ug/m3	03/14/2023	TO-15

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:** **2300073**	
R7 Superfund and Emergency Management	Project ID: APA72Z01	**Reported:**
SEMD/REMB/SRES	Project: Garvey Elevator - Quarterly SVE Vapor AP	03/21/2023 11:38

Sample Results
(Continued)

Lab ID: **2300073-10**

Sample ID: **Field Dup (Effluent)** **Matrix:** **Air** **Sampled:** **03/07/23 09:00**

Analyte	Result	Qualifiers/ Comments	MDL / RL	Units	Date Analyzed	Method
Volatile Organic Compounds by GCMS						**VOC 3230.04**
Chloroform	ND	UJ	0.12	ug/m3	03/14/2023	TO-15
Carbon Tetrachloride	**1.2**		0.32	ug/m3	03/14/2023	TO-15
Tetrachloroethene	ND		0.34	ug/m3	03/14/2023	TO-15

United States Environmental Protection Agency
Region 7
300 Minnesota Avenue Kansas City, KS 66101

Angela Puls	**WO#:**	**2300073**	
R7 Superfund and Emergency Management	Project ID:	APA72Z01	**Reported:**
SEMD/REMB/SRES	Project:	Garvey Elevator - Quarterly SVE Vapor AP	03/21/2023 11:38

Certified Analyses included in this Report

Analyte	CAS #	Certifications
TO-15 in Air		***VOC 3230.04***
Chloroform	67-66-3	ISO
Carbon Tetrachloride	56-23-5	ISO
Tetrachloroethene	127-18-4	ISO

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Angela Puls	**WO#:**	**2300073**	
R7 Superfund and Emergency Management	Project ID:	APA72Z01	**Reported:**
SEMD/REMB/SRES	Project:	Garvey Elevator - Quarterly SVE Vapor AP	03/21/2023 11:38

List of Certifications

Code	Description	Number	Expires
ISO Mobile	ISO/IEC 17025:2017 - Environmental Testing	L22-243	05/31/2024
ISO	ISO/IEC 17025:2017 - Environmental Testing	L22-243	05/31/2024

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Angela Puls	**WO#:**	**2300073**	
R7 Superfund and Emergency Management	Project ID:	APA72Z01	**Reported:**
SEMD/REMB/SRES	Project:	Garvey Elevator - Quarterly SVE Vapor AP	03/21/2023 11:38

Explanation of Qualifiers used on this report

Item	Definition
J	The identification of the analyte is acceptable, the reported value is an estimate.
UJ	The analyte was not detected at or above the reporting limit. The reporting limit is an estimate.
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated.

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Angela Puls	**WO#:**	**2300073**	
R7 Superfund and Emergency Management	Project ID:	APA72Z01	**Reported:**
SEMD/REMB/SRES	Project:	Garvey Elevator - Quarterly SVE Vapor AP	03/21/2023 11:38

Explanation of Units used on this report

Units	Description
%	Percent
[blank]	
boat	Milestone boat
Deg C	Degrees Celcius
g	Grams
g/min	Gallons per Minute
m2	Square Meters
mg	Milligrams
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
mL	Milliliters
mL/L/hr	Milliliters per Liter per Hour
mm	Millimeters
mm/sec	Millimeters per second
MPN/100mL	Most Probable Number per One Hundred Milliliters
mV	Millivolts
ng	Nanograms
ng/kg	Nanograms per Kilogram
ng/L	Nanograms per Liter
NTU	Nephelometric Turbidity Unit
P/A	Presence/Absence
pg/cm2	Picograms per Square Centimeter
pg/L	Picograms per Liter
pg/m3	Picograms per Cubic Meter
SU	Standard Unit
ug/cm2	Micrograms per Square Centimeter
ug/kg	Micrograms per Kilogram
ug/L	Micrograms per Liter
ug/m2	Micrograms per Square Meter
ug/m3	Micrograms per Cubic Meter
ug/mL	Micrograms per Milliliter
uL	Microliters
umhos/cm	Micromhos per Centimeter
umoles/g	Micromoles per Gram
uS/cm	Microsiemens per Centimeter

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Region 7
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Angela Puls	**WO#:**	**2300073**	
R7 Superfund and Emergency Management	Project ID:	APA72Z01	**Reported:**
SEMD/REMB/SRES	Project:	Garvey Elevator - Quarterly SVE Vapor AP	03/21/2023 11:38

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
			Default Report (not modified)
			VERSION 6.22:1009
2300073-01	VOC 3230.04	Chloroform	LCS-02: Laboratory Control Sample recovery was less than the established control limit.
2300073-02	VOC 3230.04	Chloroform	LCS-02: Laboratory Control Sample recovery was less than the established control limit.
2300073-03	VOC 3230.04	Chloroform	LCS-02: Laboratory Control Sample recovery was less than the established control limit.
2300073-04	VOC 3230.04	Chloroform	LCS-02: Laboratory Control Sample recovery was less than the established control limit.
2300073-05	VOC 3230.04	Chloroform	LCS-02: Laboratory Control Sample recovery was less than the established control limit.
2300073-06	VOC 3230.04	Chloroform	LCS-02: Laboratory Control Sample recovery was less than the established control limit.
2300073-07	VOC 3230.04	Chloroform	LCS-02: Laboratory Control Sample recovery was less than the established control limit.
2300073-08	VOC 3230.04	Chloroform	LCS-02: Laboratory Control Sample recovery was less than the established control limit.
2300073-09	VOC 3230.04	Chloroform	LCS-02: Laboratory Control Sample recovery was less than the established control limit.
2300073-09	VOC 3230.04	Chloroform	UJ: The analyte was not detected at or above the reporting limit. The reporting limit is an estimate.
2300073-10	VOC 3230.04	Chloroform	LCS-02: Laboratory Control Sample recovery was less than the established control limit.
2300073-10	VOC 3230.04	Chloroform	UJ: The analyte was not detected at or above the reporting limit. The reporting limit is an estimate.
B23C043-BLK1	VOC 3230.04	Chloroform	LCS-02: Laboratory Control Sample recovery was less than the established control limit.
B23C043-BLK1	VOC 3230.04	Chloroform	UJ: The analyte was not detected at or above the reporting limit. The reporting limit is an estimate.
B23C043-BS1	VOC 3230.04	Chloroform	Exceeds lower control limit
B23C043-DUP1	VOC 3230.04	Chloroform	LCS-02: Laboratory Control Sample recovery was less than the established control limit.

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

EPA PROJECT MANAGER (Print)	SITE OR SAMPLING EVENT	DATE OF SAMPLE COLLECTION(S)	COC PAGE
Angela Puls	Garvey Elevator - 1st Quarter	3 (MONTH) 7 (DAY) 2023 (YEAR)	1 of 1

CONTENTS OF SHIPMENT

WORK ORDER (WO) AND SAMPLE NUMBER (e.g. 2200058-01)	TYPE OF CONTAINERS: 1 L PLASTIC BOTTLE	6L CANISTER	BOTTLE	BOTTLE	VOA SET (3 VIALS EA)	SAMPLED MEDIA: WATER	SOLID	HAZ WASTE	AIR	OTHER	RECEIVING LABORATORY REMARKS OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBER(S) OF CONTAINERS PER SAMPLE NUMBER										
2300073-01		1							✓		
2300073-02		1							✓		
2300073-03		1							✓		
2300073-04		1							✓		
2300073-05		1							✓		
2300073-06		1							✓		
2300073-07		1							✓		
2300073-08		1							✓		
2300073-09		1							✓		
2300073-10		1							✓		Field Duplicate
WO Complete											
											Air canisters hand-delivered to the STC at room temp.
											No temp. check needed on air canisters. nr3/9/23

DESCRIPTION OF SHIPMENT

10 CONTAINER(S) CONSISTING OF 2 CRATE(S)

_____ ICE CHEST(S): OTHER w/WO 2300072 nr3/9/23

MODE OF SHIPMENT

☐ COMMERCIAL CARRIER _____

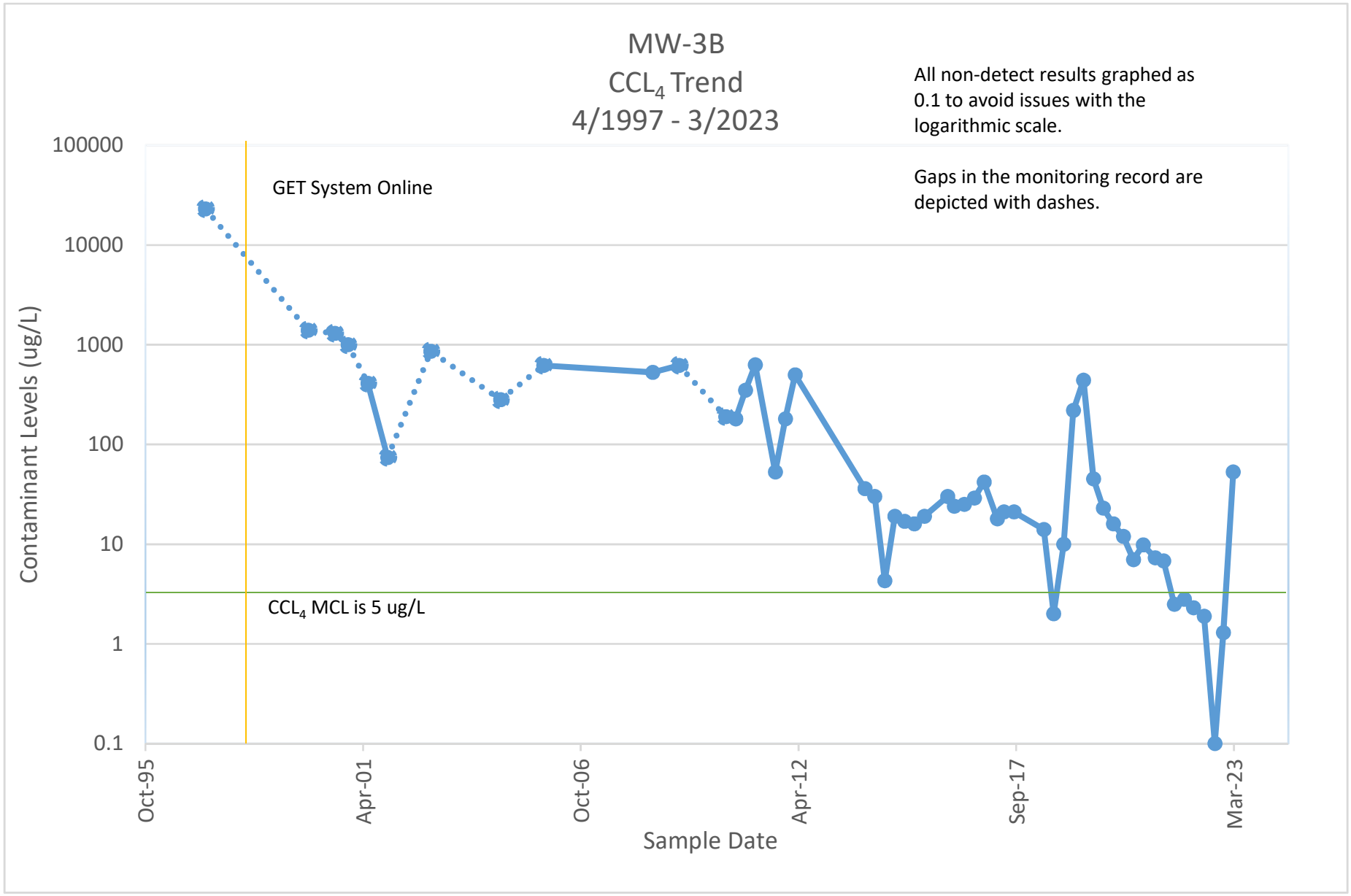
☑ SAMPLER CONVEYED _____ (SHIPPING AIRBILL NUMBER)

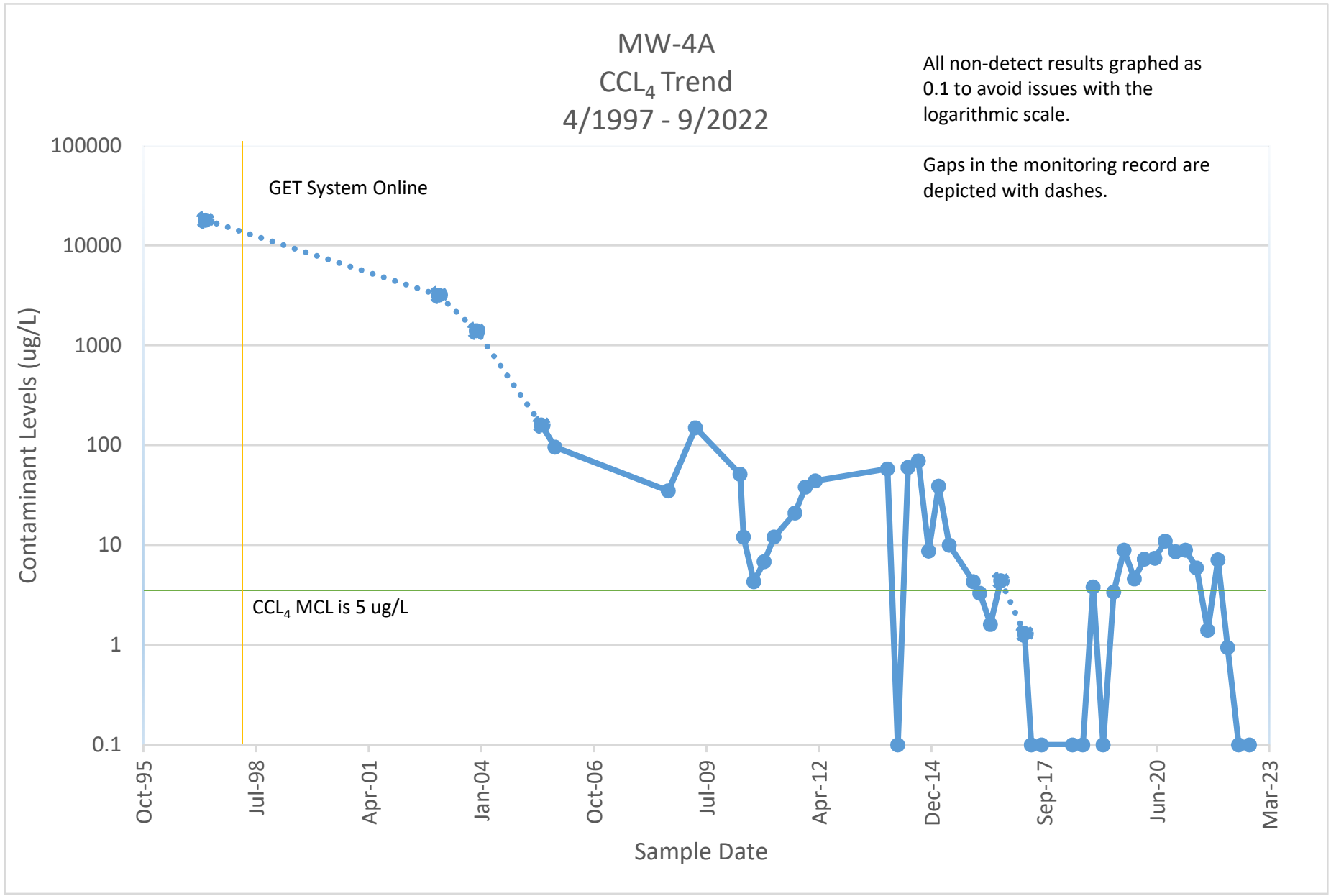
PERSONNEL CUSTODY RECORD

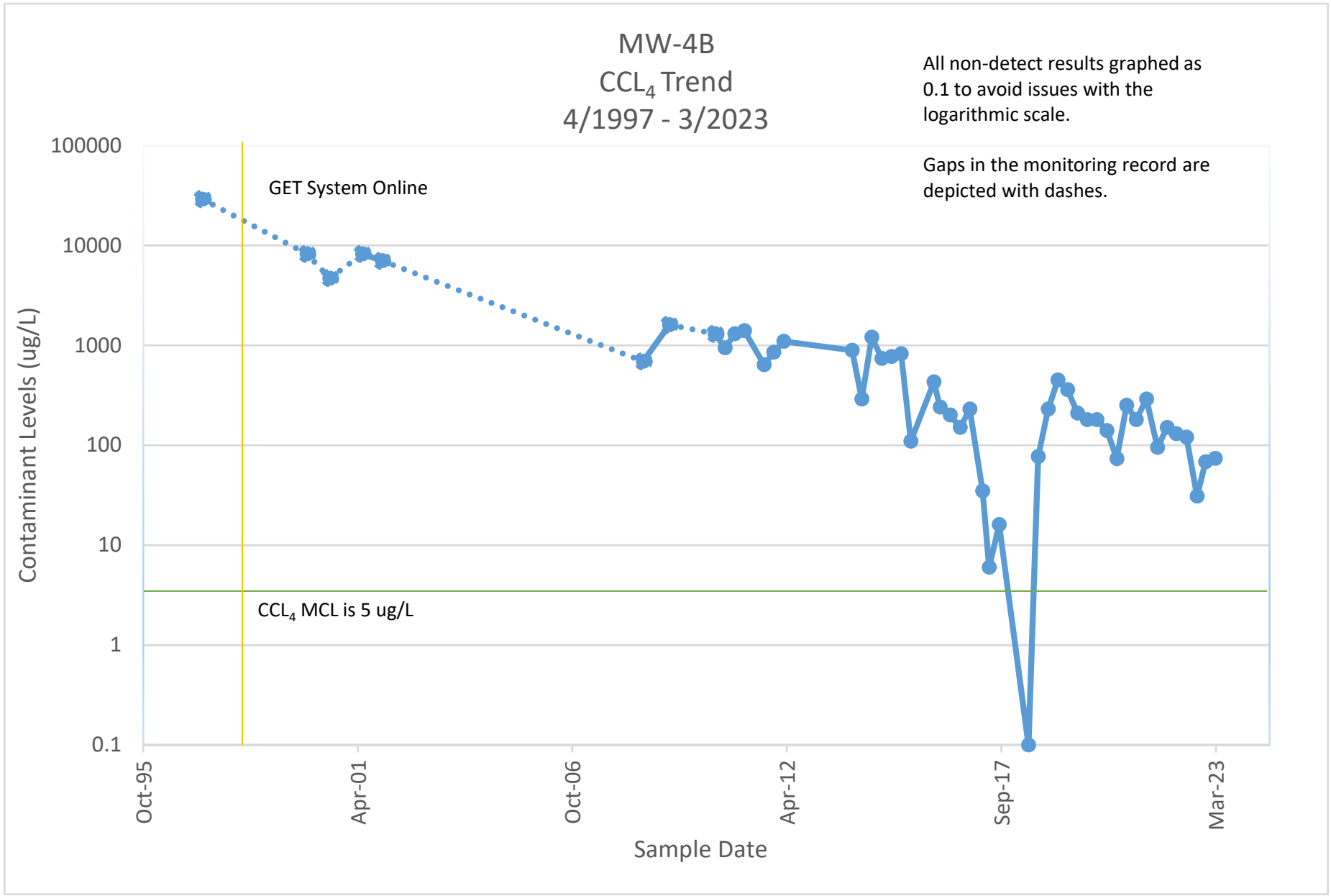
RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
Cody Crater [signature block]	NICOLE ROBLEZ Digitally signed by NICOLE ROBLEZ Date: 2023.03.09 10:23:25 -08'00'	STC Analyses
◉ SEALED ○ UNSEALED	◉ SEALED ○ UNSEALED	
RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
○ SEALED ○ UNSEALED	○ SEALED ○ UNSEALED	
RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
○ SEALED ○ UNSEALED	○ SEALED ○ UNSEALED	
RELINQUISHED BY (PM/SAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
○ SEALED ○ UNSEALED	○ SEALED ○ UNSEALED	

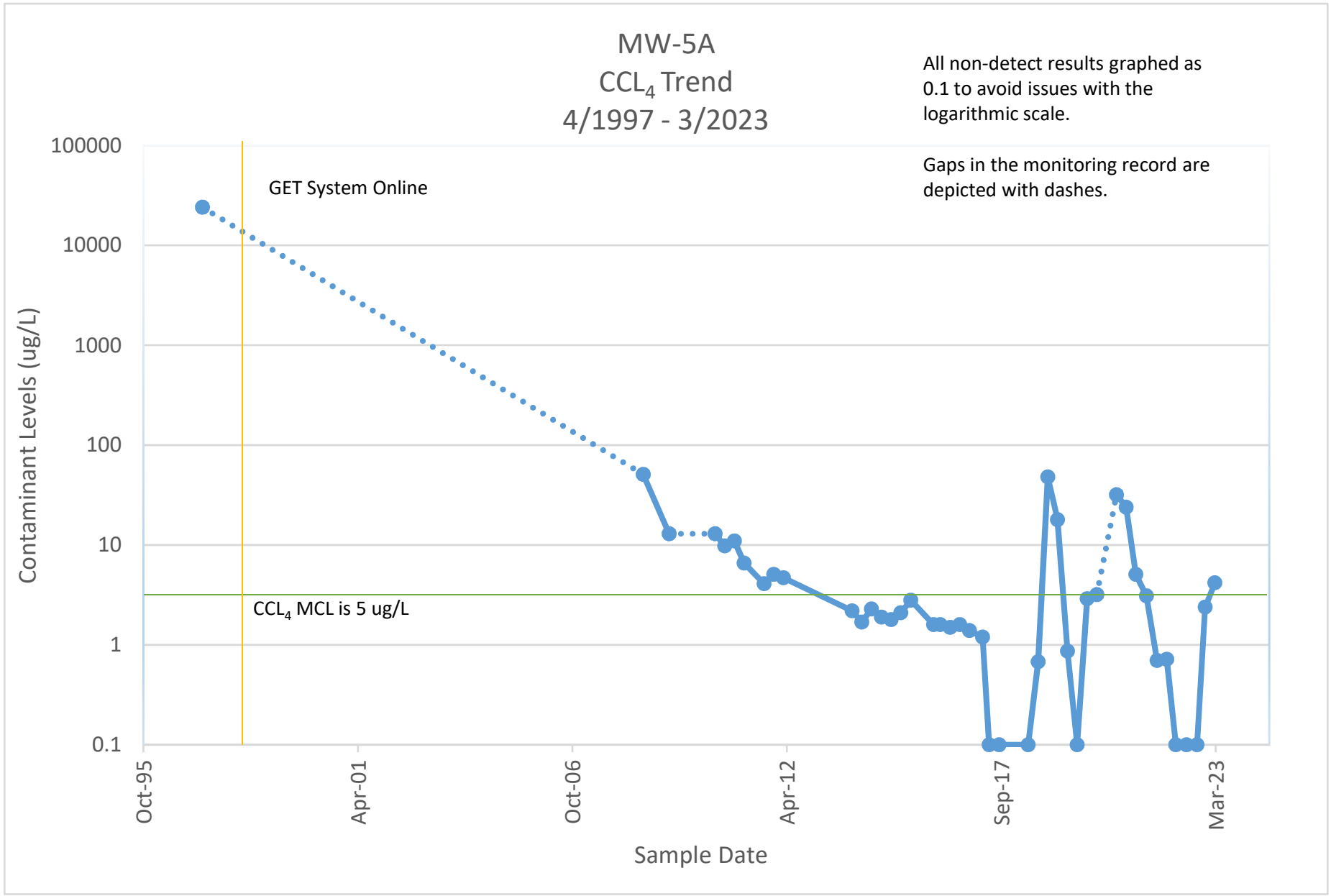
7-EPA-6282 (REV 4/17)

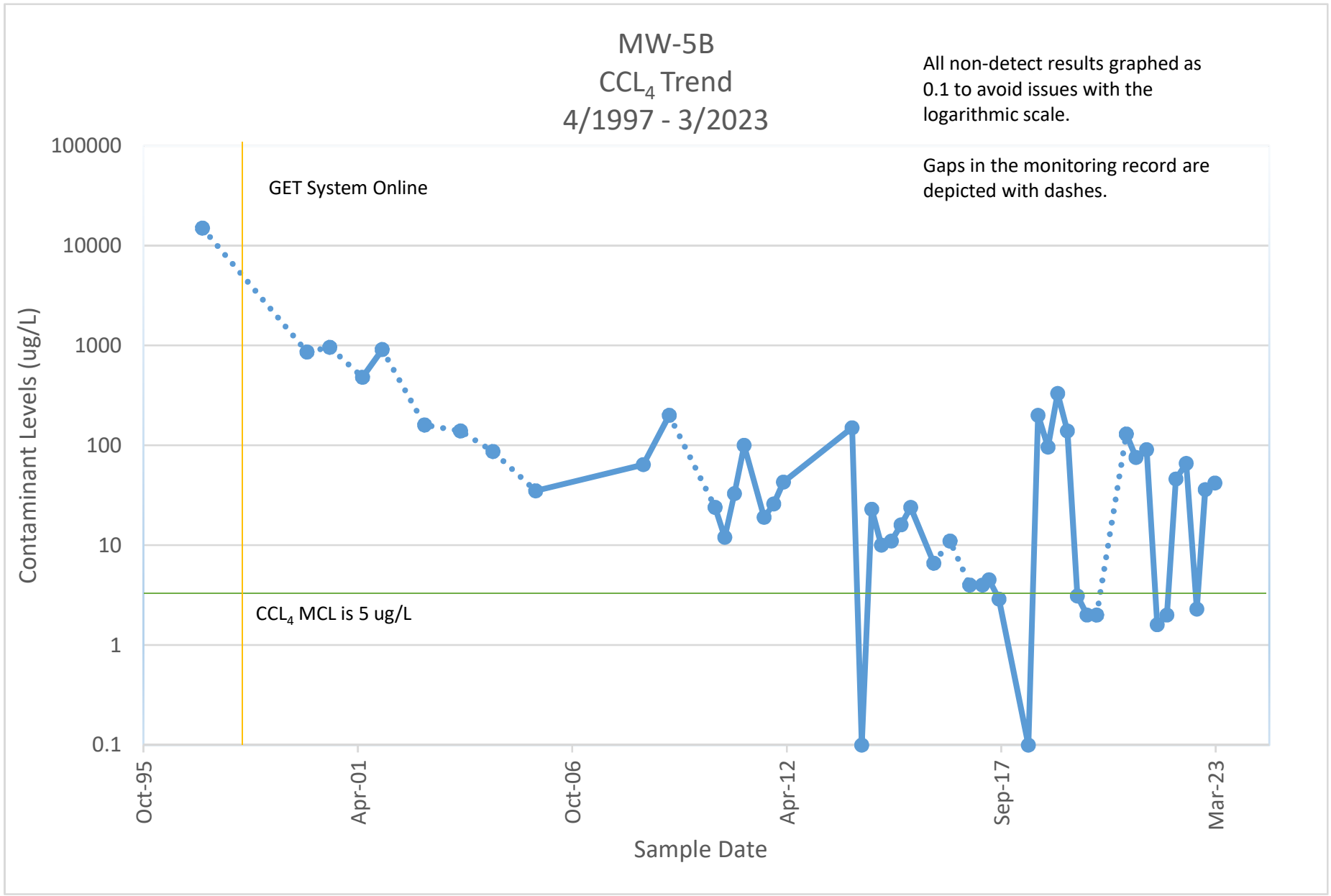
Attachment 4:
Carbon Tetrachloride Trend Graphs

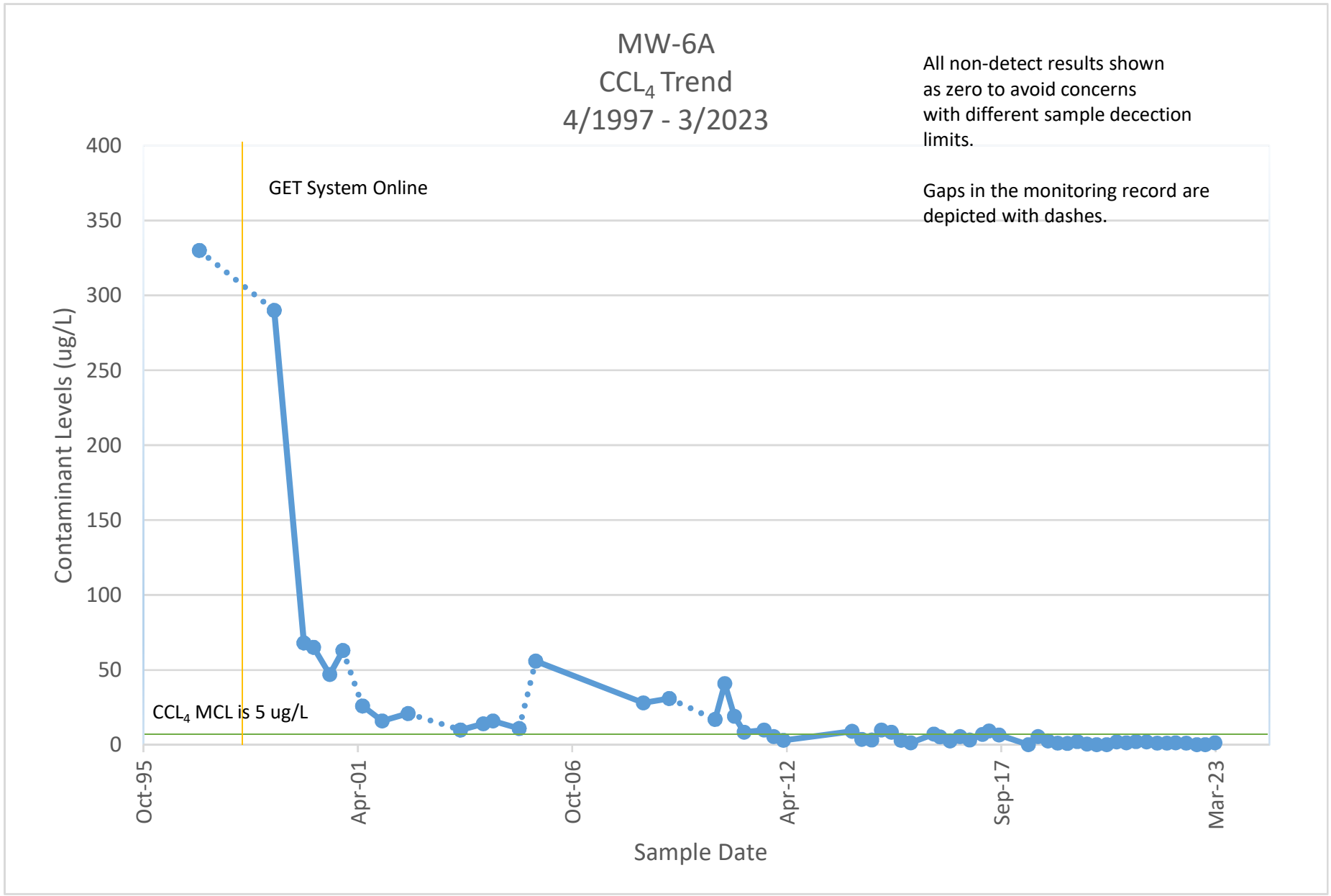

MW-3B
CCL4 Trend
4/1997 - 3/2023
All non-detect results graphed as 0.1 to avoid issues with the logarithmic scale.
Gaps in the monitoring record are depicted with dashes.
GET System Online
CCL4 MCL is 5 ug/L
Contaminant Levels (ug/L)
100000
10000
1000
100
10
1
0.1
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
Sample Date


MW-4A
CCL4 Trend
4/1997 - 9/2022
All non-detect results graphed as 0.1 to avoid issues with the logarithmic scale.
Gaps in the monitoring record are depicted with dashes.
GET System Online
CCL4 MCL is 5 ug/L
Contaminant Levels (ug/L)
100000
10000
1000
100
10
1
0.1
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
Sample Date


MW-4B
CCL4 Trend
4/1997 - 3/2023
All non-detect results graphed as 0.1 to avoid issues with the logarithmic scale.
Gaps in the monitoring record are depicted with dashes.
GET System Online
CCL4 MCL is 5 ug/L
Contaminant Levels (ug/L)
100000
10000
1000
100
10
1
0.1
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
Sample Date


MW-5A
CCL4 Trend
4/1997 - 3/2023
All non-detect results graphed as 0.1 to avoid issues with the logarithmic scale.
Gaps in the monitoring record are depicted with dashes.
GET System Online
CCL4 MCL is 5 ug/L
Contaminant Levels (ug/L)
100000
10000
1000
100
10
1
0.1
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
Sample Date


MW-5B
CCL4 Trend
4/1997 - 3/2023
All non-detect results graphed as 0.1 to avoid issues with the logarithmic scale.
Gaps in the monitoring record are depicted with dashes.
GET System Online
CCL4 MCL is 5 ug/L
Contaminant Levels (ug/L)
100000
10000
1000
100
10
1
0.1
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
Sample Date

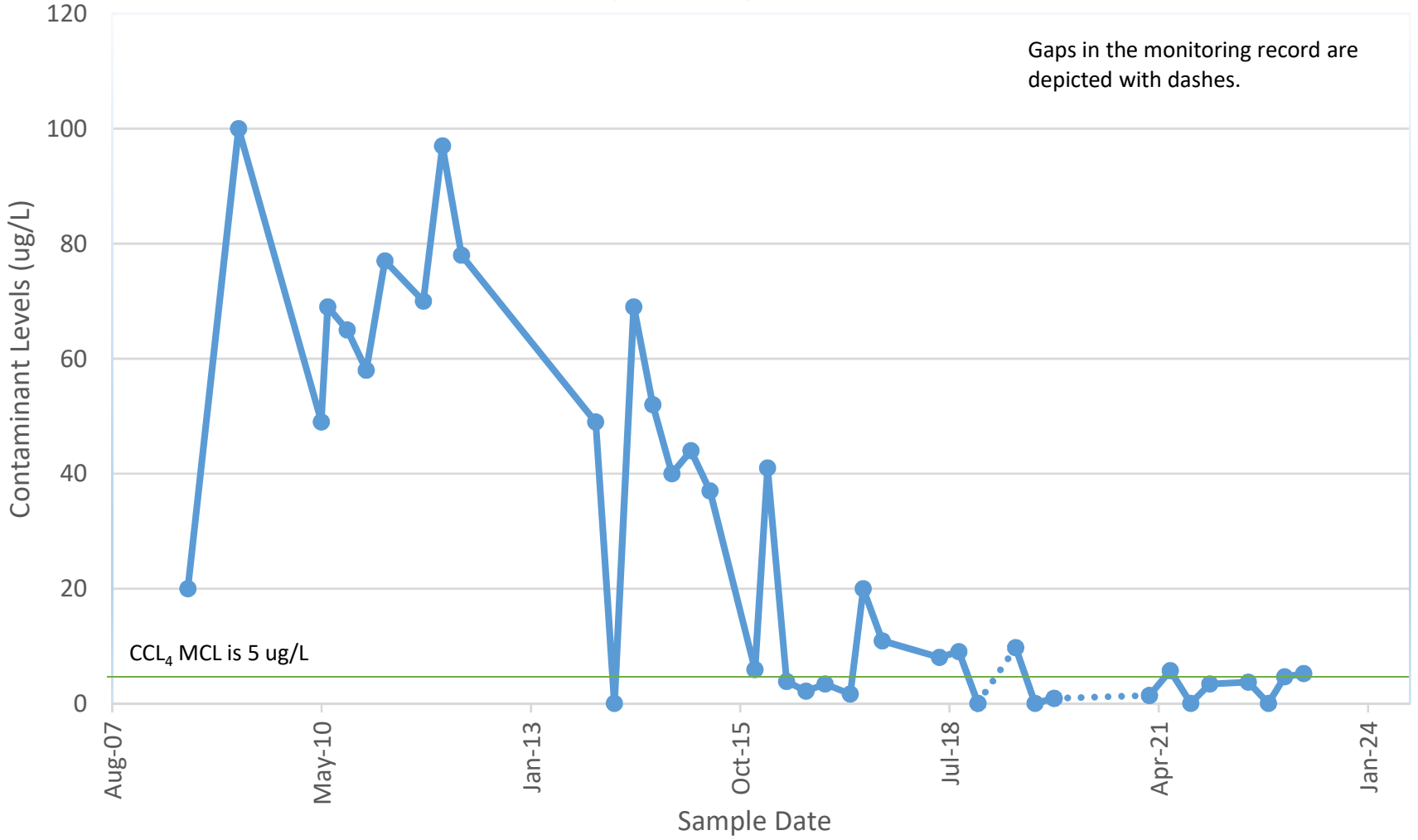

MW-6A
CCL4 Trend
4/1997 - 3/2023
All non-detect results shown as zero to avoid concerns with different sample decection limits.
Gaps in the monitoring record are depicted with dashes.
GET System Online
CCL4 MCL is 5 ug/L
Contaminant Levels (ug/L)
400
350
300
250
200
150
100
50
0
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
Sample Date

GET System Online
in Jan 1999.
Well installed in 2008.

MW-19A
CCL_4 Trend
8/2008 - 3/2023

All non-detect results shown as 0.1 to avoid concerns with different sample decection limits.

Gaps in the monitoring record are depicted with dashes.

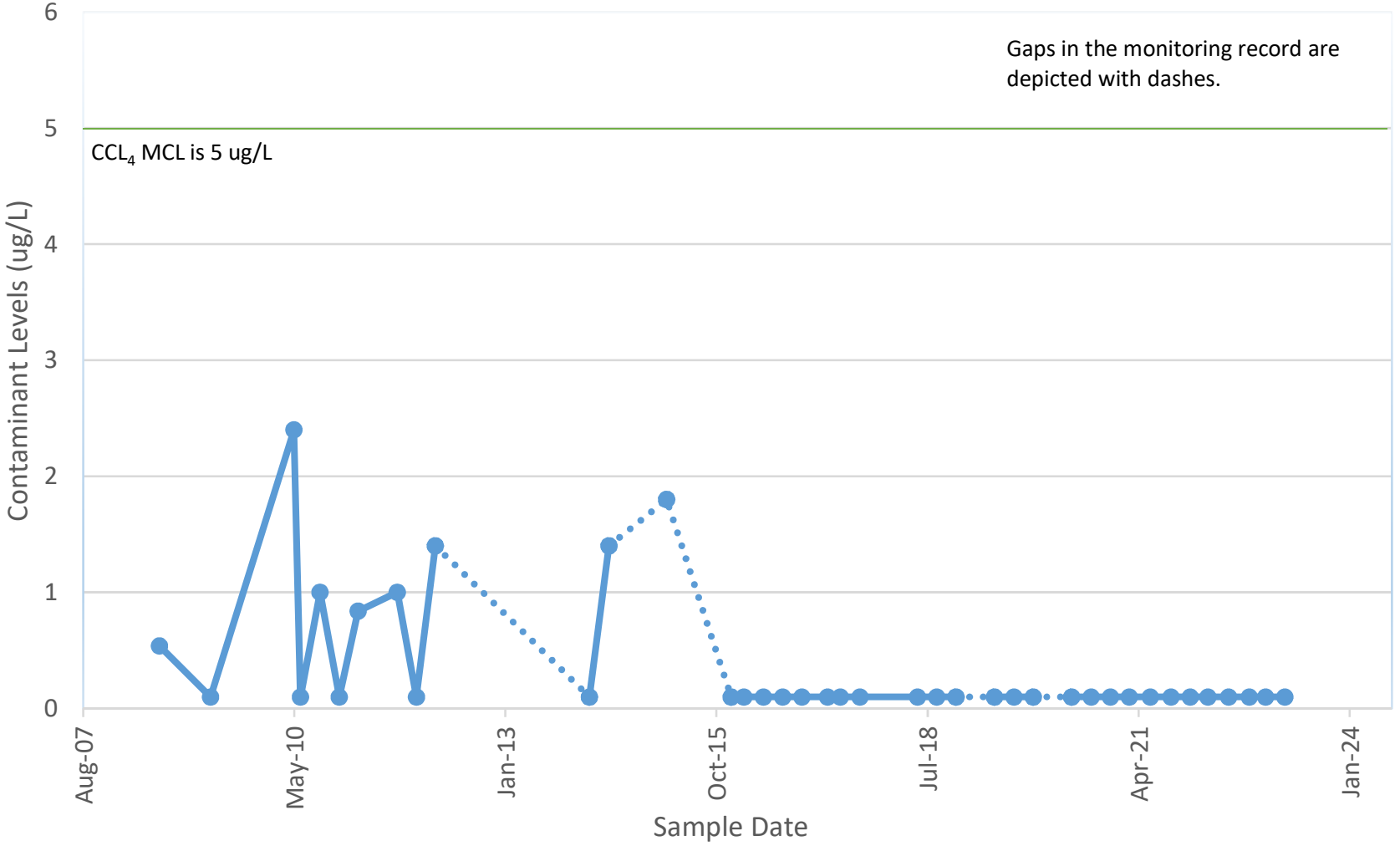


GET System Online
in Jan 1999.
Well installed in 2008.

MW-20A
CCL_4 Trend
8/2008 - 3/2023

All non-detect results shown as 0.1 to avoid concerns with different sample decection limits.

Gaps in the monitoring record are depicted with dashes.

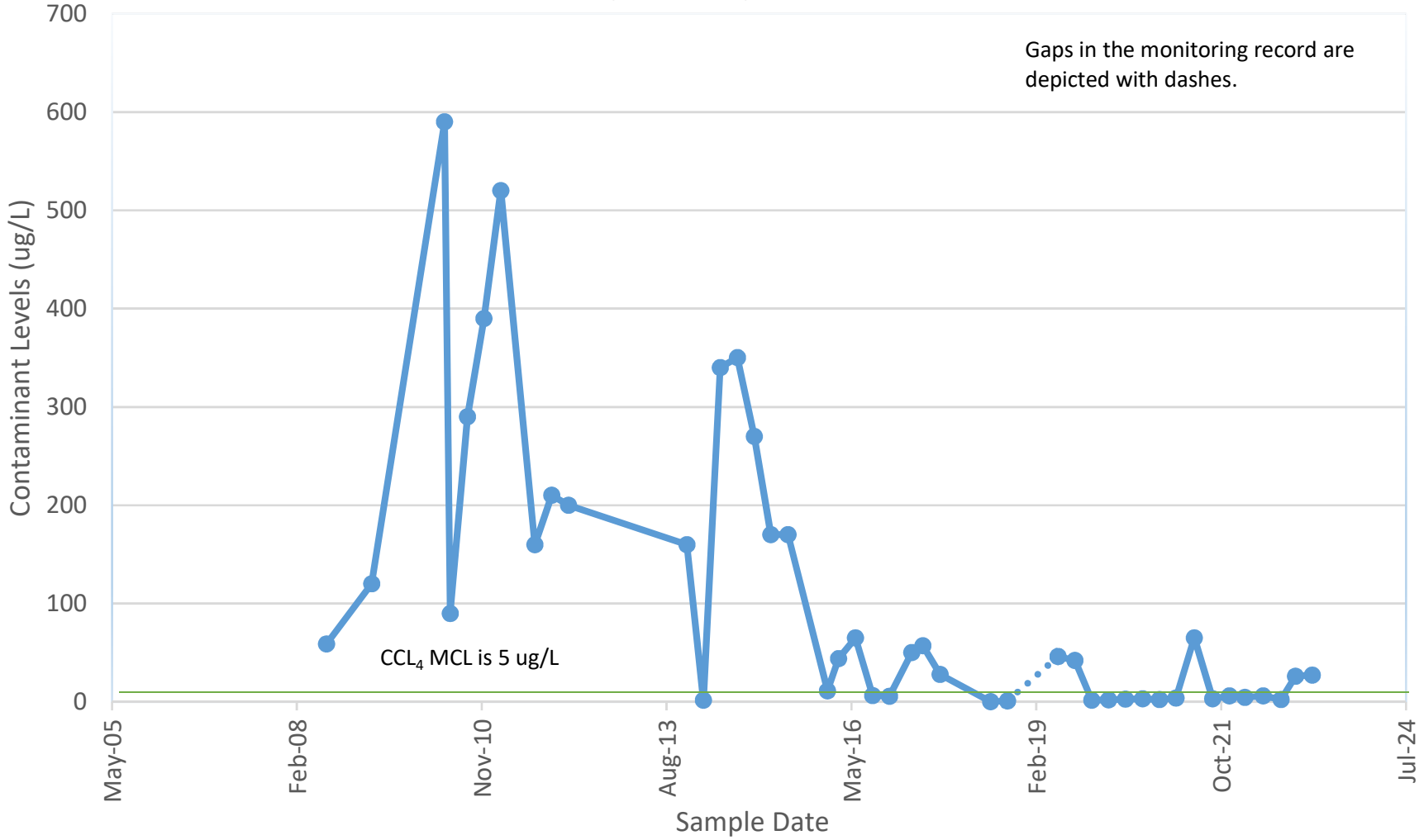


GET System Online
in Jan 1999.
Well installed in 2008.

MW-30A
CCL_4 Trend
8/2008 - 3/2023

All non-detect results shown as 0.1 to avoid concerns with different sample decection limits.

Gaps in the monitoring record are depicted with dashes.

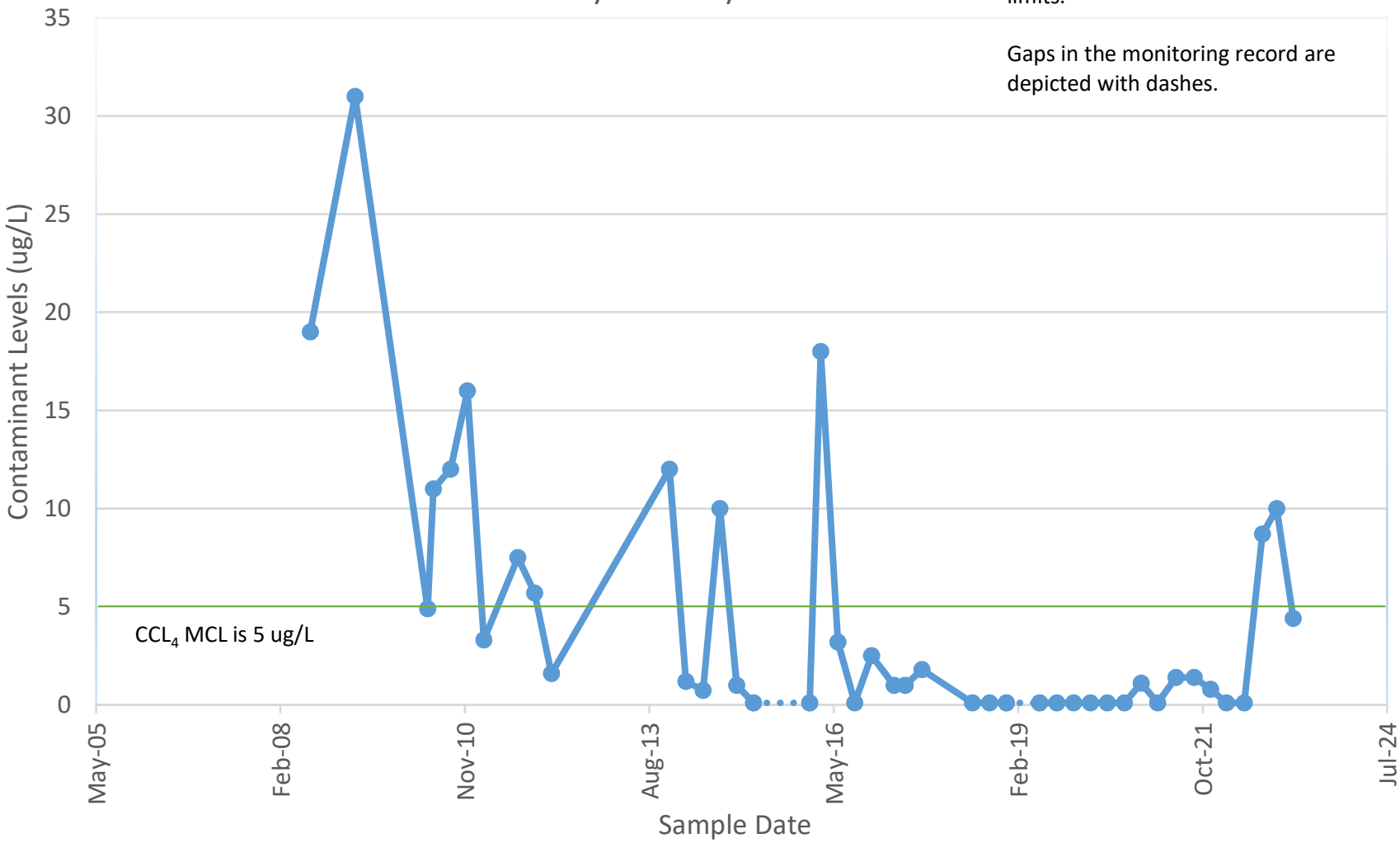


GET System Online
in Jan 1999.
Well installed in 2008.

MW-31A
CCL_4 Trend
8/2008 - 3/2023

All non-detect results shown as 0.1 to avoid concerns with different sample decection limits.

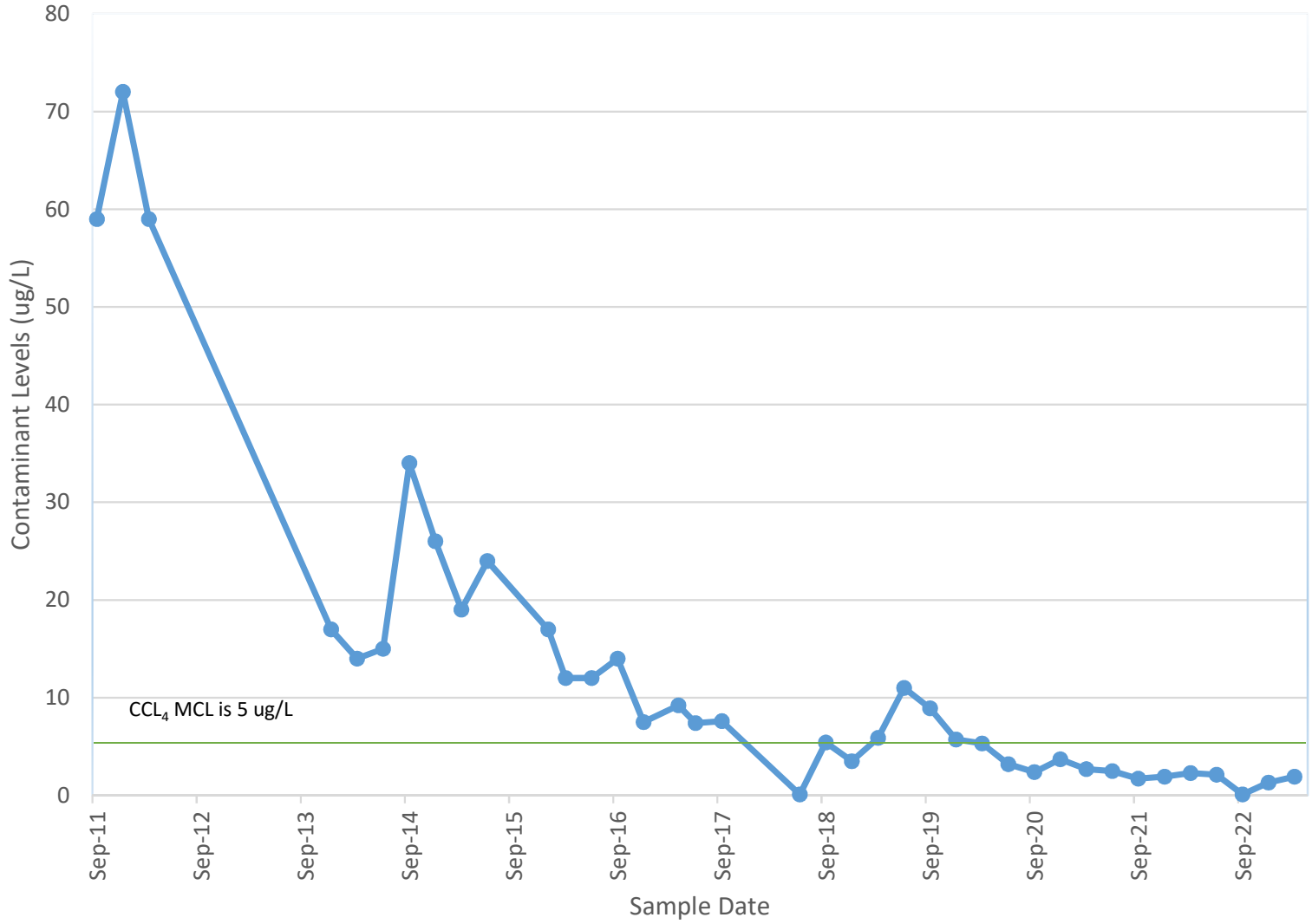
Gaps in the monitoring record are depicted with dashes.



GET System Online
in Jan 1999.
Well installed in 2011.

MW-47B
CCL_4 Trend
9/2011 - 3/2023

All non-detect results shown
as 0.1 to avoid concerns
with different sample decection
limits.

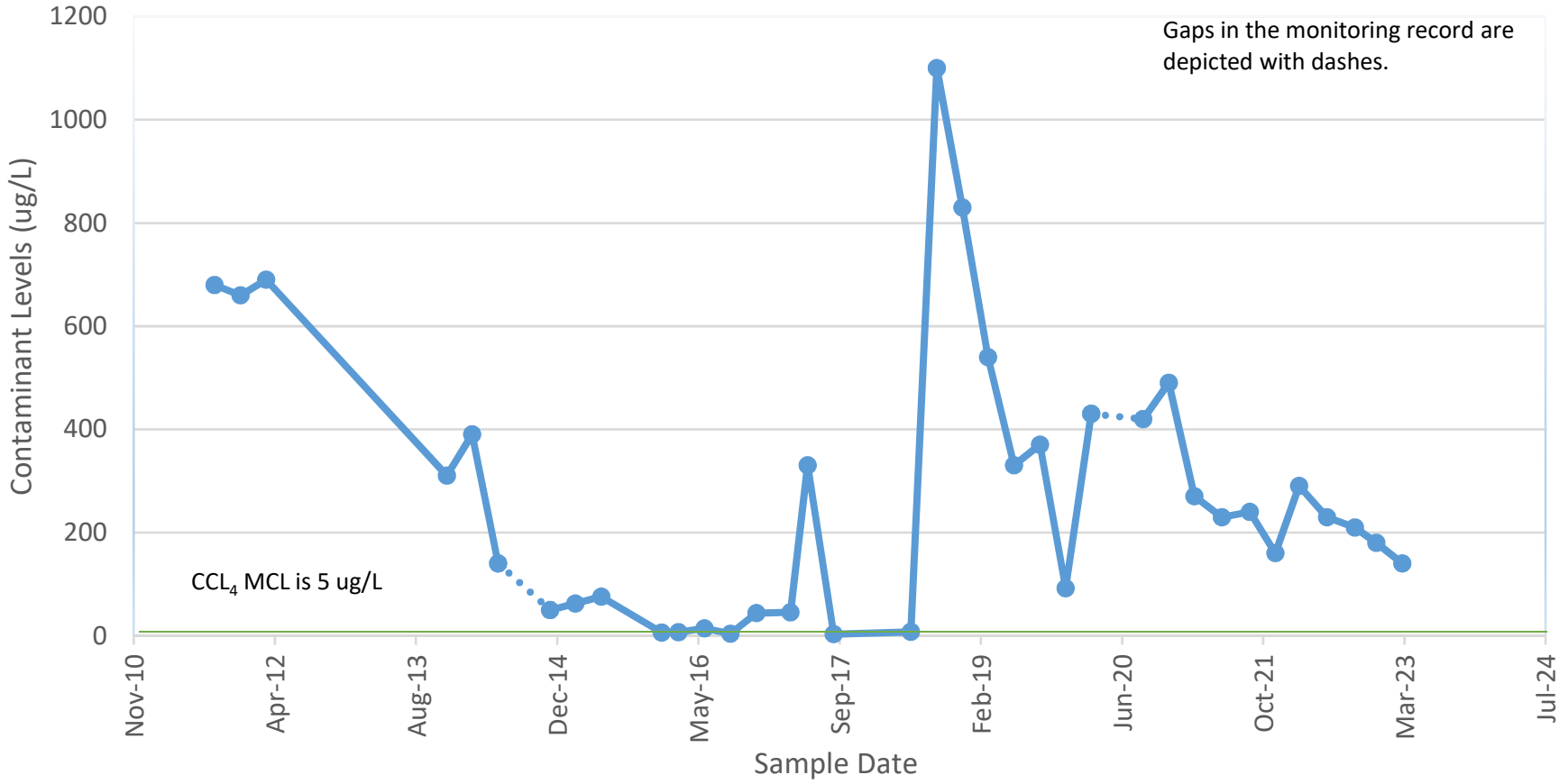


GET System Online
in Jan 1999.
Well installed in 2011.

MW-48B
CCL_4 Trend
9/2011 - 3/2023

All non-detect results shown
as 0.1 to avoid concerns
with different sample decection
limits.

Gaps in the monitoring record are
depicted with dashes.

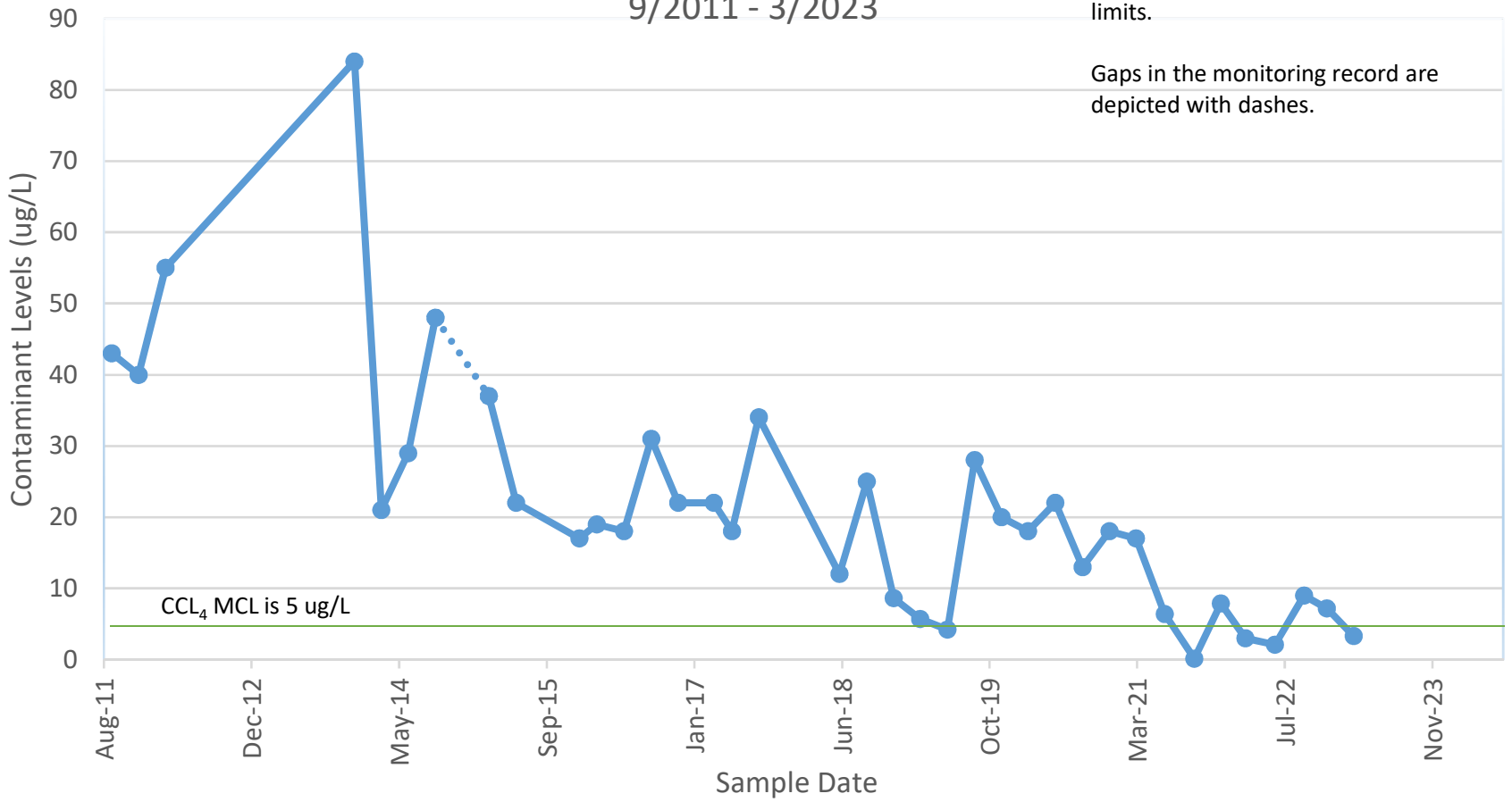


GET System Online
in Jan 1999.
Well installed in 2011.

MW-49B
CCL_4 Trend
9/2011 - 3/2023

All non-detect results shown
as 0.1 to avoid concerns
with different sample decection
limits.

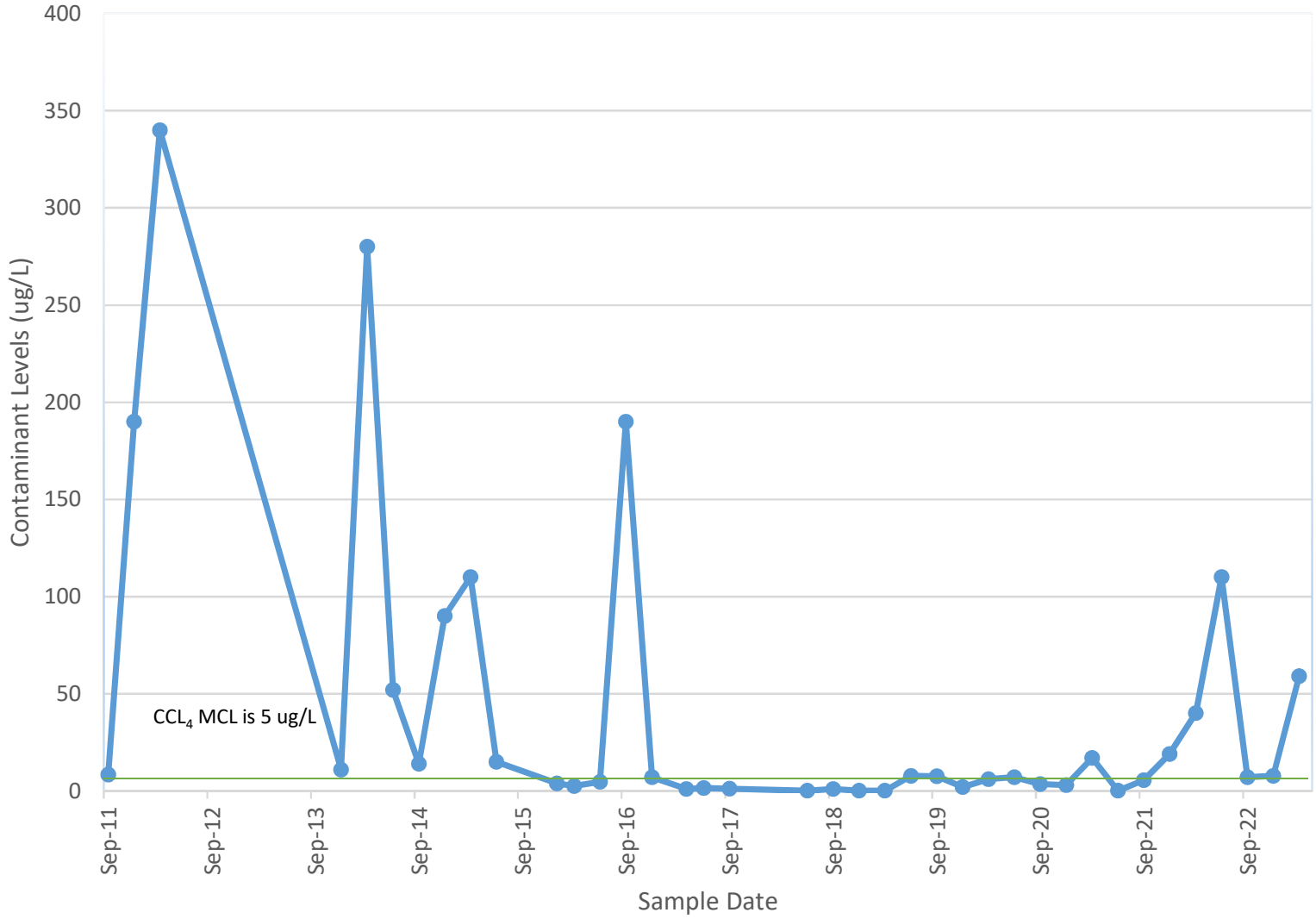
Gaps in the monitoring record are
depicted with dashes.



GET System Online
in Jan 1999.
Well installed in 2011.

MW-50B
CCL_4 Trend
9/2011 - 3/2023

All non-detect results shown
as 0.1 to avoid concerns
with different sample decection
limits.



GET System Online
in Jan 1999.
Well installed in 2011.

MW-51B
CCL_4 Trend
9/2011 - 3/2023

All non-detect results shown
as 0.1 to avoid concerns
with different sample decection
limits.